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of
Ornithology

HARRISON B. TORDOFF
Editor

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Associate Editor

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THE WILSON BULLETIN

A QUARTERLY MAGAZINE OF ORNITHOLOGY

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THE PRESIDENT'S PAGE

This letter is in the nature of hail and farewell. *The Wilson Bulletin* already has a new Editor and Associate Editor, and before the next issue appears the Club will have a new Secretary and a new President. It is scarcely necessary to say that those who are retiring wish these new officers well.

I cannot let the occasion pass without expressing, on behalf of the Club, our appreciation for the long and unselfish service which George M. Sutton as Editor, Andrew Berger as Assistant Editor, and Harold F. Mayfield as Secretary have given. During the five years of World War II, the Wilson Club held no general meetings. Following this trying period, George Sutton took over as President, and later as Editor. His work went far toward re-knitting our membership into a compact group. With Andy Berger's assistance, he maintained the high standards of *The Wilson Bulletin*. The generosity of many Club members has made possible the publishing of more color plates than in any similar period of the *Bulletin's* history.

To the Secretaryship, Harold Mayfield brought a wide business experience and a deep understanding of human values. He is one of the devoted amateurs in our ranks, and his work on Kirtland's Warbler has demonstrated an ability to match the professional in scientific competence. More than any other person, he is responsible for the excellent programs of our annual meetings during the last five years.

No person may serve the Wilson Club without gaining a sense of the vigor of its membership. The Club is sixty-two years old, fairly venerable as such organizations go in this country. Yet it has not run out of ideas, nor of members to put these ideas into execution. Its early interest in life history and ecology has flowered and borne an abundant harvest. In a very real sense, it has helped in shaping the direction of ornithological work throughout the world.

Mark Twain, in "A Connecticut Yankee," has a wonderful statement as to his concepts of government and society. To paraphrase his ideas, officers come and go, but the Club is the enduring thing. All strength derives from it, and it will flourish just so long as its members share in the responsibility for its welfare. I am happy that at this year's Annual Meeting we seem likely to wipe out for all time the artificial barriers imposed by different classes of membership in the Club. There will no longer be an Associate grade; all members will be equal in their duties and their privileges. This is as it should be in a democracy.

One source of deep gratification lies in the close cooperation between the Wilson Club and its sister organizations, the American Ornithologists' Union and the Cooper Ornithological Club. Through some happy circumstance, each organization has found its sphere of usefulness, and no clashes of interest have arisen. This comity has made possible the service of Sewall Pettingill as President of the Wilson Club while he was also Secretary of the A. O. U., and has allowed Josselyn Van Tyne to maintain an active interest in Wilson Club affairs while he is President of the A. O. U. It is fortunate indeed that such relationships exist.

My personal thanks go to all who have so unselfishly given of their time and money during the past two years. This has made the President's lot a happy one. I'll see you in Gatlinburg.

MAURICE BROOKS

FLINT-BILLED WOODPECKER
(*Phloeoceastes guatemalensis regius*)

Adult male, life-size, sketched February 16, 1938, along the Río Corona, near the village of Güemes, Tamaulipas, México, by George Miksch Sutton. This is the second of a series of eight color plates honoring the memory of Dr. David Clark Hilton.

THE FLINT-BILLED WOODPECKER

BY GEORGE MIKSCH SUTTON

THE Flint-billed Woodpecker (*Phloeoceastes guatemalensis*) has been widely known as the Guatemalan Ivory-bill; but since it is neither very closely related to the true Ivory-bills of the genus *Campephilus*, nor by any means restricted to the republic of Guatemala, a new name seems to be needed. Wetmore has said of the species: "These are strong-muscled, robust birds with tough, thick skins, so that their preparation as specimens entails definite physical labor. A needle will scarcely penetrate the thickened skin of the back of the head" (1943. *Proc. U. S. Natl. Mus.*, 93:272). In one of my early notebooks appears a statement, not wholly in jest, to the effect that a good name for the bird would be Thick-skinned Woodpecker.

The Flint-bill ranges from Panamá northward throughout tropical Central America and México to southeastern Sonora in the west and to central Tamaulipas in the east. Along the Laredo-to-Mexico City highway I have seen it repeatedly as far north as Victoria and Guëmes, Tamaulipas. I have never seen it on the Mesa de Llera proper, but in the well-wooded valleys below the mesa it is fairly common. In the northern part of its range it probably does not reach elevations above 2000 feet.

It is about 14½ inches long. Adult and immature birds of both sexes are crested. The adult male's entire head is red. In the female the pileum and throat are black, while the nostril feathers, fore part of the chin, and sides of the head are red. In nestling males the crest proper is red, but the front half of the crown and most of the head are dusky. In young females the upper part of the crest is black, the lower part red. As for the neck and body, these are largely black in all plumages; but a broad white line down each side of the neck connects with a narrow white shoulder stripe; the breast and belly are barred with light grayish buff; and the wing linings are pale yellow. This yellow seems especially bright when the sun's rays are nearly horizontal. In adults the bill is flinty gray at the base, grayish white toward the tip, the eyes pale yellow, the skin around the eyes dark gray.

For a long time I thought that the Flint-bill was voiceless; but on May 29, 1947, along the Río Sabinas in Tamaulipas, I happened upon a family group —a young female, well able to fly, and its parents. The adult birds gave a loud note of protest which I jotted down as *keck* or *kack* (Sutton, 1950. *Bird-Banding*, 21:49). The species' most characteristic "sound," however, is an incisive double-rap, a sort of abbreviated drumming, sometimes given in chorus. Such a chorus Mr. and Mrs. Robert J. Newman, Mr. and Mrs. Richard R. Graber, Charles Shaw, and I heard in the late afternoon on January 8,

1952, in the vicinity of Rancho Sabinal, west of Aquismon, San Luis Potosi. A single bird, a male, in a tree near the old hacienda in which we were living, continued to give the double-rap from one spot (about 30 feet from the ground) for about three-quarters of an hour, and we heard what seemed to be answering double-raps, but no *vocal* Flint-bill utterance, from a dozen directions during the same period.

The flight of the Flint-bill is undulatory, though usually not deeply so. The bird is energetic in its feeding. With its powerful bill it hacks away at the bark and dead wood.

The nest is excavated by both the female and the male. On March 1, 1938, while on a riverbank trail near Gómez Farías, Tamaulipas, I heard the dull *puck, puck*, of a woodpecker at work above me. When the bird finally backed out so that I could see it, I perceived that it was a female Flint-bill. A loud double-rap from her served to summon the male, who went to work promptly, though for some reason he did not wholly disappear within the cavity. Occasionally he backed out completely to toss a billful of chips into the air. In 1941, members of the Cornell University—Carleton College Expedition found two nests—one (partly finished) half-way up the mountain just west of the Río Sabinas, near Gómez Farías, about 1500 feet elevation, April 12; the other, finished but empty, about fifteen feet from the ground in a leaning dead tree very close to the river, April 30 (Sutton and Pettingill, 1942, *Auk*, 59:19). I have never seen the eggs.

University of Michigan Museum of Zoology, Ann Arbor, January 23, 1952

NOTES ON VARIATION IN THE CAROLINA CHICKADEE

BY WILLIAM A. LUNK

RECENTLY I undertook to identify an Oklahoma series of Carolina Chickadees (*Parus carolinensis*) in Dr. George M. Sutton's collection, and to clarify the limits of that portion of the species' range. Extended far beyond the scope of the original problem, the work finally entailed not only rather exhaustive comparison of material from Oklahoma and neighboring states, but also study of considerable series from the eastern part of the range. In all, well over 450 specimens of *P. carolinensis* and about 100 of *P. atricapillus* were examined. I assembled data which it seems desirable to present without further delay, outlining some tentative conclusions but fully recognizing the incompleteness of many parts of the study.

For the use of material I am indebted to Herbert Friedmann, John T. Zimmer, M. Dale Arvey, E. R. Hall, A. I. Ortenburger, Arthur C. Twomey, and others; special thanks are due J. L. Peters for examining some specimens for me and loaning others, Josselyn Van Tyne and R. W. Storer for suggestions both in the study and in preparation of this paper, Richard and Jean Graber for collecting a number of specimens, W. H. Brudon for assistance in preparation of the figures, and above all to Dr. Sutton for generously placing his series at my disposal and assisting throughout the work.

Northwestern Range of the Species

The literature indicates no very clear understanding of the northwestern limits of the Carolina Chickadee's range. I find that the species occurs throughout Oklahoma, exclusive probably of the panhandle, westward at least to Lipscomb County in the northeastern corner of the Texas panhandle, and across southern Kansas from Meade County northeastward to Greenwood and Douglas counties.

Included in Dr. Sutton's fine series (mostly of breeding males) are birds from Ellis (Sutton, 1936:433), Roger Mills, Caddo, Payne, Noble, Oklahoma, and Murray counties, Oklahoma. Nice (1931:131) has given additional data on the species in Oklahoma, including the report of specimens from Woodward County. Material I have examined from other collections adds a number of other Oklahoma localities. The Lipscomb County, Texas, bird is an unsexed immature (U.S.N.M. No. 186735) taken in June. Most of the 31 Kansas specimens examined, taken by various collectors, are in the University of Kansas collection. Two from Douglas County, however, are at the University of Oklahoma; and the single one from Meade County, collected in the summer of 1950, by Graber, is in the Sutton collection.

I wish to point out that the northern limit of *P. carolinensis* in this region, as here outlined, very nearly coincides with the southern limit of *P. atricapillus*. I have made no attempt to locate all Kansas specimens of the latter species; but among those collected by Graber and now in the Sutton collection are examples from as far south as Hamilton, Meade, and Butler counties. The occurrence of *P. atricapillus* in Oklahoma has been reported (Nice, *loc. cit.*) but I have seen no specimen, or other published record of a specimen, of this species from the state.

Methods and Scope of Study

In studying the specimens, I first considered variation in size and color, temporarily disregarding present subspecific distinctions. Size data I have treated statistically and graphically; but only direct comparisons were employed for color, with no attempt at precise quantitative treatment.

Measurements were made with dividers, and wing-measurements are of the chord; tail-lengths were taken by visually placing one tip of the divider at the point where the middle rectrices meet the skin, and measuring to the tip of the longest feather (unless this obviously was loosened and extended beyond its normal position in the tail).

Juvenile chickadees are recognizable by texture of body plumage, dullness of coloration, and other features, and were not considered in any of the tabulations. Recognition of first-winter and one-year-old birds presents more of a problem. Few series included enough accurately aged specimens to be of use in this connection (a notable exception being the large series of *P. a. septentrionalis* collected by Wetmore at Lawrence, Douglas County, Kansas). There are probably enough differences so that a technique for age-determination could be perfected; but thus far I do not feel I can make accurate and clear-cut distinctions. Finding, furthermore, no demonstrable difference in size or color between comparable series of adults and known immatures, I eliminated only a few clearly labelled immatures of *P. carolinensis*, and treated the remainder of the samples as composed for all practical purposes of adult birds.

As I shall show later, size disparity is so great in chickadees that proper determination of sex is of prime importance. Any birds with sex questioned or not indicated were eliminated from the tabulations. Even so, it is probable that a certain amount of error was introduced by incorrectly sexed specimens.

In color comparisons, birds were carefully separated on a seasonal basis. In treating measurements, however, the undoubted discrepancies caused by differing amounts of (normal) wear were considered impractical to eliminate. The distributional picture, furthermore, may be confused somewhat by seasonal movements of the birds. Chickadees are comparatively sedentary; but

there is ample evidence of some migratory movement, which in some cases might be considerable.

Individual and seasonal variation is striking in series from any given locality. Study skins of chickadees are made difficult to work with by the marked effects of poor preparation, dirty plumage, wear, fading, and foxing and discoloration of some older specimens. I would stress the need not only for more, but for better, material: namely, clean, well made skins, particularly in fresh fall plumage, with as much detailed ecological data as possible.

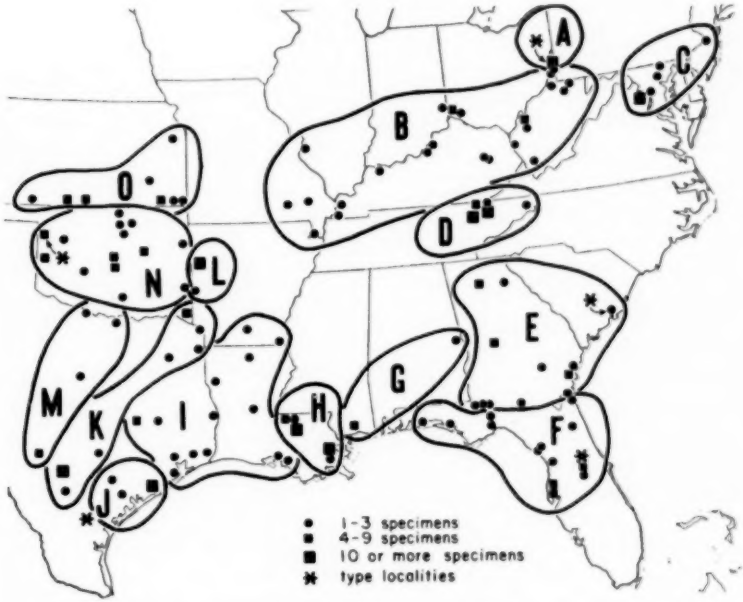

FIG. 1. Locations and grouping of samples of *P. carolinensis* treated. Lettered areas A-O, outlined in bold black: arbitrary groupings of specimens used, for statistical purposes. Species range is virtually continuous; only its southern and northwestern limits are approximately suggested by the black lines; blank areas within the range denote merely regions from which no specimens were used in this study.

GEOGRAPHIC VARIATION

For comparative treatment I found it necessary to group in some way the scattered samples used. Figure 1 shows the arrangement of my 15 groups, arrived at after consideration of geographic separation, size of samples, and differences shown, and after elimination of unsuitable specimens as explained

above. Solid outlines and bold-face letters (A-O) indicate merely these arbitrary groupings; and for the sake of brevity the samples will be referred to usually by the letter designations only. Actual boundaries of the specific and subspecific ranges are not intended to be indicated on the map. It will be seen that the alphabetical series of samples run generally from northeast to southeast, then west and southwest, and then north. The samples cover, in a scattering fashion, the greater part of the range of the Carolina Chickadee.

Size

Variations in wing and tail measurements have been most useful. These values lend themselves well to statistical treatment, the results of which are given in Table 1. I assembled only a small part of the material available from eastern states, and many of the samples both there and in the west are admittedly small. Samples of less than ten individuals, I did not analyze beyond the calculation of a simple mean. However, the trends in size are unmistakable; I believe the figures will be useful not only in connection with the present remarks but as a basis for comparison in further studies.

Keeping in mind the generally clockwise geographical progression of the samples, we see in Table 1 a steady decrease in mean dimensions of *P. carolinensis* from the northeast to the southeast of the species' range (A-F), then relatively little change across its southern portions (F-J), and a marked increase again to the northwest (J-O). Even the smallest samples give means that fit in well with this pattern. The trends are closely similar for wing-length and tail-length, and for the two sexes. I have used most of the wing-length figures, which tend to show less variability, to illustrate in somewhat clearer fashion the nature of the variation, making use of the so-called Dice squares (Fig. 2). Figure 2 shows what appears to be a smooth clinal gradation from northern West Virginia, Ohio, and neighboring states (A-B), where the wing-length of males averages close to 64 mm., to Georgia and Florida (E-F), where it averages about 60 mm. There is little change in size through the states to the west along the Gulf, until we come to coastal Texas and western Louisiana (I-J), where the mean wing-length of males appears to be something under 61.5 mm. Then passing north and west into the higher elevations of central and north-central Texas (K-M) we find indications of a very marked increase in size, until over a wide area through Oklahoma and Kansas (N-O) males seem to have a wing-length averaging well over 65 mm. The general direction of size increase then seems to be from south to north, or somewhat from southeast to northwest. The magnitude of the change is apparent from Table 1 and Figure 2.

I have not fully treated the measurements of bill and tarsus. Some of the

TABLE 1

MEASUREMENTS OF SAMPLES OF *P. carolinensis*. (See map, Figure 1 for localities.)

Locality	WING					TAIL				
	No.	Range	Mean	σ	V	No.	Range	Mean	σ	V
MALES										
A	10	62 -66	64.0±.38	1.2	1.9	10	54 -58	55.9±.40	1.3	2.3
B	21	59.5-67	63.4±.39	1.8	2.8	21	53 -62	55.5±.52	2.4	4.3
C	11	60 -64.5	62.9±.36	1.2	1.9	11	52 -57.5	54.2±.51	1.7	3.1
D	24	59 -67	62.6±.43	2.1	3.4	24	50.5-58	53.9±.37	1.8	3.4
E	19	56.5-65	60.2±.45	2.0	3.3	19	48 -54.5	52.0±.42	1.8	3.5
F	23	56 -63	59.9±.35	1.7	2.8	24	48.5-55	51.0±.32	1.6	3.0
G	5	59 -63	61.0 —	—	—	4	48.5-53	50.3 —	—	—
H	34	56 -63	59.7±.32	1.8	3.1	34	48.5-55	50.8±.26	1.5	3.0
I	15	59 -66	61.4±.44	1.7	2.8	15	47.5-56.5	52.7±.64	2.5	4.7
J	21	58.5-64.5	61.0±.32	1.5	2.4	21	50 -56	53.1±.31	1.4	2.6
K	14	60.5-68	63.1±.45	1.7	2.7	14	50 -59	54.6±.51	1.9	3.5
L	10	60.5-67	63.8±.63	2.0	3.1	10	52 -59	55.8±.65	2.0	3.7
M	7	62 -65	63.6 —	—	—	7	55 -59	56.7 —	—	—
N	32	62 -69	65.5±.33	1.9	2.9	32	54.5-62	57.8±.33	1.9	3.2
O	15	62 -67.5	65.1±.36	1.4	2.1	15	54 -63.5	58.7±.57	2.2	3.7
IJ	36	58.5-66	61.2±.27	1.6	2.6	36	47.5-56.5	52.9±.32	1.9	3.6
MNO	54	62 -69	65.2±.24	1.8	2.7	54	54 -63.5	57.9±.27	2.0	3.5
FEMALES										
A	16	57 -64	61.2±.44	1.8	2.9	16	52 -58	54.7±.39	1.5	2.8
B	18	58 -65	61.2±.38	1.6	2.7	18	48.5-57.5	53.8±.63	2.7	5.0
C	9	58.5-62	60.3 —	—	—	9	50.5-54.5	52.5 —	—	—
D	13	56 -65	60.1±.67	2.4	4.0	13	50 -58	52.6±.64	2.3	4.4
E	10	57 -62	58.4±.49	1.6	2.7	10	47.5-52.5	49.8±.63	2.0	4.0
F	14	54 -59	57.0±.34	1.3	2.2	14	46 -51	48.8±.35	1.3	2.6
G	5	56.5-61.5	58.5 —	—	—	5	46.5-51.5	49.3 —	—	—
H	17	55 -61.5	57.7±.35	1.5	2.5	17	47.5-52.5	49.4±.37	1.5	3.1
I	8	56 -59	57.8 —	—	—	8	47 -52.5	49.8 —	—	—
J	22	57 -62	59.3±.32	1.5	2.6	22	48 -55.5	51.2±.38	1.8	3.5
K	10	58 -62	60.4±.32	1.0	1.7	10	48.5-54.5	51.7±.53	1.7	3.3
L	7	57.5-65	61.1 —	—	—	7	52.5-58.5	55.0 —	—	—
M	3	60.5-63	61.5 —	—	—	3	51 -57	54.0 —	—	—
N	7	60.5-66	63.8 —	—	—	7	55 -62	57.7 —	—	—
O	7	59 -66	62.4 —	—	—	7	54 -61.5	57.2 —	—	—
IJ	30	56 -62	58.9±.28	1.5	2.6	30	47 -55.5	50.8±.35	1.9	3.7
MNO	17	59 -66	62.8±.48	2.0	3.2	17	51 -62	56.9±.64	2.6	4.6

MEASUREMENTS OF SAMPLES OF *P. atricapillus*.

Locality	WING					TAIL				
	No.	Range	Mean	σ	V	No.	Range	Mean	σ	V
MALES										
W. Va.	7	64 -67.5	65.9 —	—	—	7	58 -64.5	61.6 —	—	—
*Kan.	37	62 -71.5	66.9±.36	2.2	3.3	37	61.5-70.5	65.4±.38	2.3	3.5
FEMALES										
W. Va.	5	61 -66.5	64.3 —	—	—	5	56.5-64	61.1 —	—	—
*Kan.	42	61.5-68	64.5±.23	1.5	2.3	42	58 -66.5	63.0±.32	2.1	3.3

* Series taken by Wetmore, near Lawrence, and in U. S. Natl. Mus. collection.

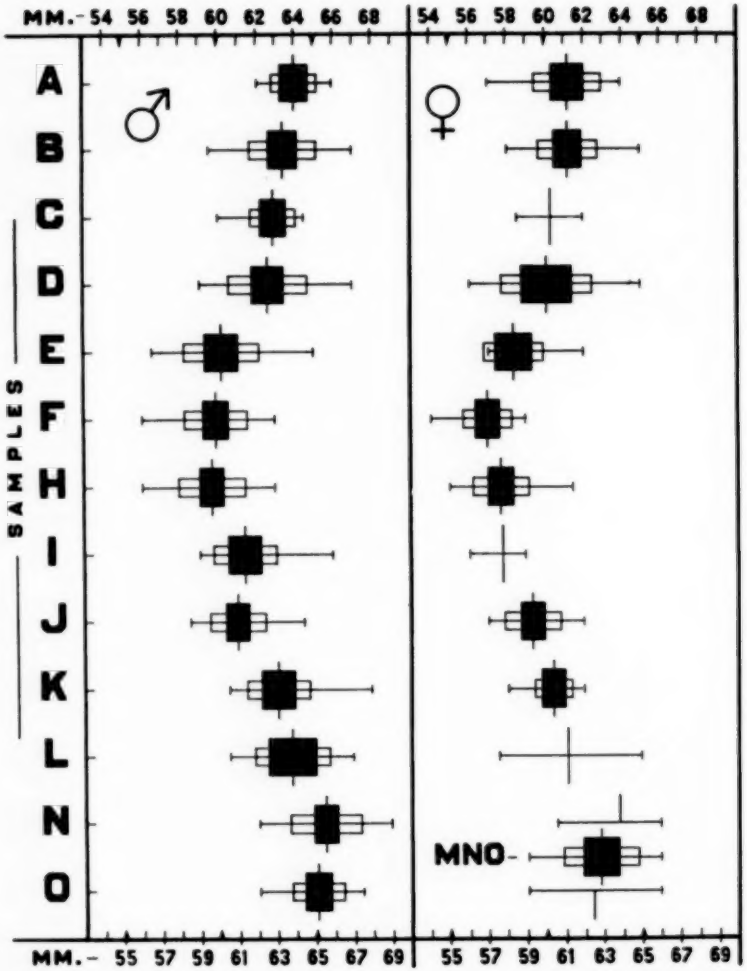

FIG. 2. Size variation (wing-length) among populations of *P. carolinensis*. (See Fig. 1 for location of samples.) In each diagram, horizontal line extends from the lowest to highest observed extreme; vertical line marks calculated mean (M); narrow rectangle represents standard deviation (σ) on each side of mean; and shaded rectangle represents twice standard error of mean ($2\sigma_M$) on each side.

larger specimens appear strikingly big-billed; but this character may well be correlated simply with over-all size.

Relative Tail-length

Since the tail/wing ratio is usually regarded as diagnostic in separating *P. carolinensis* from *P. atricapillus*, I thought it deserved special attention. Rather than present an orthodox statistical treatment of the ratios as such, I have chosen to use a diagram (Fig. 3), in which I have plotted mean wing-length against mean tail-length for males of each sample considered (open circles). We see shown, not actually a constant ratio, but rather one that

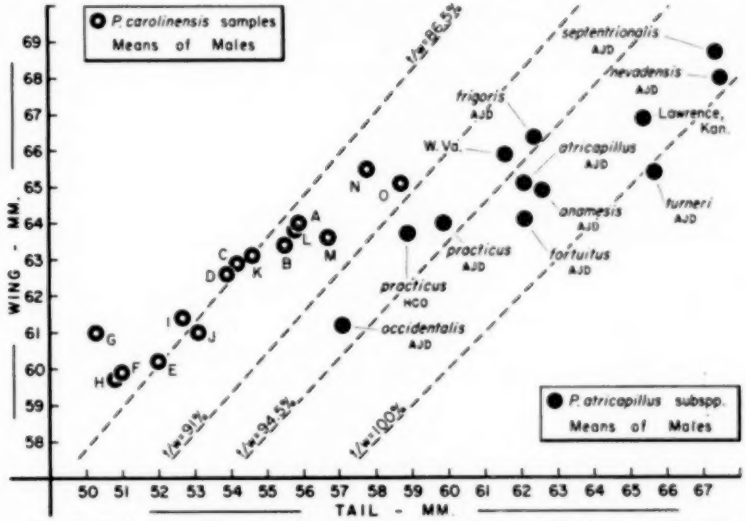

FIG. 3. Tail/wing ratios (based on mean measurements of males) of populations of *P. carolinensis* and of *P. atricapillus*. Data for most races of *atricapillus* from Duvall (1945 - AJD); that for one sample of *practicus* from Oberholser (1937: 220 - HCO); the rest from my Table 1. (For locations of lettered samples, see map Fig. 1.)

increases somewhat with over-all size of the birds. (Absolute size increases along a diagonal from lower left to upper right, while a proportionately longer- or shorter-tailed condition is indicated by a trend to lower right or to upper left respectively. For reference some lines of constant ratio have been added.) The general curve suggested is seen to lean decidedly to the right, the smaller (southern) populations averaging distinctly shorter-tailed, relatively, than the larger (northern) ones. (Plot "G", however, is further displaced because of the very small sample used.) I do not regard the differences as sufficient to be of much taxonomic importance within the species.

For comparison, I have plotted some mean measurements for populations of *P. atricapillus* on the same graph (solid circles—see details in legend).

For this purpose I have borrowed some figures given by Duvall (1945), and used a few of my own from Table 1. The interesting and somewhat disturbing feature is the way in which the largest *P. carolinensis* (those in West Virginia, etc., A-B, and especially those in Oklahoma and Kansas, N-O) seem to approach the smallest *P. atricapillus* (note *practicus* and *occidentalis*) not only in absolute mean measurements, but to some degree in proportions. The graph shows one almost continuous band of variation rather than the two parallel bands that might be expected. Furthermore, it must be remembered that Figure 3 is based on *mean* measurements. If we were to plot all individuals we would be dealing with a series of broadly overlapping ellipses (cf. Fig. 4, which is drawn to the same scale and shows two populations so plotted). The conclusion is that some individuals must occur which cannot be assigned to one or the other species on the basis of tail/wing ratio alone. Such individuals do occur, and precisely in the areas where either species might be expected (cf. Duvall, 1945:56). I have identified as *P. carolinensis* a number of remarkably long-tailed individuals, both from the east and from the west. Several of the more puzzling ones, mostly females (in the University of Kansas collection), fall within the size range even of *P. a. septentrionalis* from neighboring areas. The tendency of *P. atricapillus* to average shorter-tailed in the southern part of its range, while less pronounced, is evident, particularly in the east. From the foregoing it will be clear that I have relied heavily upon coloration for specific identification of material. There may be considerable convergence in coloration also, but my data indicate that it is more likely to be valid than size and proportion in deciding doubtful cases.

I do not suggest that hybridization or intergradation necessarily exists. I do infer, however, that there is a correlation, adaptive and/or genetic, between size and relative tail-length, which appears to apply in some manner to both species considered. Careful studies in areas where both species occur, to determine just how constant the various morphological characters are in relation to call-notes, breeding behavior, and general habits, would certainly strengthen our understanding of the distinctions.

Color

For the study of coloration features, I selected series of *P. carolinensis* males from various localities representing most of the sample areas, one group consisting of fall birds (Sept. 1 to Dec. 1) and another of spring specimens (Feb. to June). In general, the brown color of the upper parts characteristic of some of the populations is due to brownish tips on the fresh feathers, and tends to disappear first as wear progresses. On the underparts as well the buffy or rufous wash is reduced by wear and fading. Thus some of the best distinctions between the populations are all but lost in spring and summer

TABLE 2

GENERAL COLOR VARIATION IN SAMPLES OF *P. carolinensis*: a rough comparison only, disregarding seasonal change and minor variations. (See Figure 1 for location of samples.)

SAMPLE	DORSAL COLORATION	GENERAL TONE	BROWNISH WASH ON SIDES	PALE EDGINGS OF FLIGHT FEATHERS
A	very brown	medium	strong	strong
B	brown - variable to west	medium	strong	strong
D	brown	dark	fairly strong	moderate
E	brown	dark	strong	weak
F	brown	dark	strong	weak
H	rather gray - variable	medium	moderate	weak
I	gray	pale	weak	moderate
J	gray	pale	weak	moderate
L	rather gray - variable	medium	fairly strong	strong
N	gray	pale	rather weak	strong
O	gray	pale	rather weak	strong

specimens, in which we must turn to the somewhat nebulous matter of general darkness or paleness, at the risk of being misled by dirt or fading.

I would want to examine much more material, particularly from eastern areas, before attempting detailed tabulations or any sort of quantitative treatment. Basic trends in coloration, however, are not difficult to detect. Table 2, while deliberately brief and general, is an attempt to show simply the most evident of these trends, which are in fact about as expected on the basis of published descriptions.

Fresh-plumaged fall birds from Bethany, West Virginia (A), are very buffy brown above, especially in the region of the scapulars, and have a heavy wash of pale rufous along the sides, extending in most cases well back along the flanks and even to the under tail coverts. These characters are shared by the birds to the south (B-H), which are on the whole not quite so brightly washed on the sides, but are nearly as brown above, and often darker in general tone. This coloration is less well marked, but still apparent, in spring birds. In contrast, the western populations (I-O) average much grayer above and in general paler, with little color on the sides even in fall; spring and summer birds may be nearly white below. Oklahoma and West Virginia birds can be separated almost perfectly on the basis of either dorsal or ventral coloration alone. Seemingly increased variability, as well as intermediacy, is evident in the samples from the Mississippi Valley area (H,L), where the sharpest change in color occurs. The tendency toward gray dorsal coloration comes well to the east along the Gulf coast, at least to eastern Louisiana (H), where

fall birds are even grayer than those (also of intermediate color) from western Arkansas. I have seen no fall specimens from extreme western Oklahoma, which individuals, by inference from the summer ones at hand, would be the grayest of all. The brown on the sides is evident farther to the west than that on the upper parts (cf. western Arkansas birds, L), perhaps because of the paler ground color below. In the west, as in the east, it is slightly more noticeable in specimens from northern areas.

The pale feather-edgings in wings and tail are very prominent and developed to about an equal degree in the northeastern (A,B) and northwestern (L,N,O) samples, though in the latter associated with generally paler coloration. In the southwestern samples (I,J) these edgings are somewhat less well developed; and in the southeast (E,G, and especially F), they are usually quite inconspicuous.

By far the most marked color variation within *P. carolinensis*, then, appears to be a cline of decreasing brownness from east to west, both as regards dorsal coloration and washing on underparts. This cline seems to break sharply in the Mississippi Valley area. The color-change is coupled with a similar trend toward general paleness of tone. Secondarily, the light feather-edgings prominent in northern specimens tend to become narrower to the south, and very much so in the southeast, where the birds are darker generally. The brownish wash on the sides tends to become stronger, or at least brighter, from south to north, although the major trend here is from west to east. From my present data I am unable to detect that these latter changes are other than a matter of smooth clinal variation.

Subspecific Treatment

It must be stressed that this is in no sense a full-scale revision, and that some conclusions herein can be no more than tentative. I have viewed the problem primarily from the population standpoint, and have not been concerned with assigning a trinomial to every specimen examined. But with the considerable amount of data before me, it still seems justifiable to comment on the broader aspects of the taxonomic situation, which are often unavoidably neglected in systematic and distributional papers involving series from only one or a few localities.

P. c. extimus (Todd and Sutton).—

This race appears to be recognizable as described (Todd and Sutton, 1936: 70). The series of 10 males and 16 females from Bethany are exact topotypes of this race. The characters of very distinct pale edgings of flight feathers, strong washing of rufous below, and marked buffy veiling dorsally of this

northeastern population have been discussed. In addition I consider the large size to be of more importance taxonomically (at least if sizeable series are treated) than have some earlier writers (cf. Wetmore, 1939:208). The measurements, particularly of sample A, in Table 1 are of interest. I consider samples A, B, C, and probably D to be representative of this form. Birds from the western portions of the range become progressively grayer and paler, and those to the south show a decrease in size and otherwise tend to intergrade with *carolinensis*.

P. c. impiger Bangs.—

The above data suggest to me that further work might prove this race a very tenuous one, if recognizable at all. Writers to date have had divergent views as to the northern limits of its range; from the specimens examined I can detect no change in size from one part of Florida to another, and very little between Florida and Georgia (see Table 1 and Figure 2). Bangs' two specimens (the female type and a male topotype) are both smaller than *any* chickadee I have measured; Mr. J. L. Peters kindly checked the measurements for me, and finds those given in the type description (Bangs, 1903:1) essentially correct. Peters writes: "type ♀: wing, 51.5 mm.; tail, 43.5. Topotype ♂: wing, 52.3 mm.; tail, 45.3" (letter). I cannot escape the conclusion that these are very abnormal birds, and that even if such individuals do occur more or less regularly they represent merely the extreme of the small size characteristic of all the southern population. Extremes of brownness and darkness, to be expected in this area, have not impressed me as striking in the series I have seen.

P. c. carolinensis Audubon.—

The nominate race, with (restricted) type locality at Charleston, S. C., seems to me unduly compressed between neighboring races to the north and south, and for that matter to the west, unless we somehow enlarge our concept of it. It is partly for this reason that I suggest the possibility of uniting with it the present *impiger*. Trautman (1940:311–312) feels also that "there are only two eastern races of this species"; but advocates retention of *impiger* and *carolinensis*. My comparisons, including (only two) topotypes from Charleston and specimens from many Georgia and Florida localities, lead me thus far to favor the other course. We would then be able to use the well defined characters of smaller size, reduced feather-edgings, general darkness and brownness of dorsal coloration, and (to a lesser extent) decreased brownish washing below for recognition of the southern race. My samples of this race have, however, been particularly scanty; I consider samples E, G, and probably H (though the latter average decidedly grayer above) as *P. c. carolinensis*, and am strongly tempted to include F.

P. c. agilis Sennett.—

I believe the characters and distribution of this race have been misunderstood from the time of its description (Sennett, 1888:46). If we consider the type locality, Bee County, Texas, near the very southern extremity of the species range, examine the type description, and compare the type itself with material from various parts of the western range of the species, inconsistency is at once apparent.

I have examined Sennett's type (A.M.N.H. No. 86395; G.B.S. No. 3894, sex not given). In coloration and size it agrees well with the good series at hand from Matagorda County, Texas (J), which I therefore propose to treat for present purposes as equivalent to topotypes; it shows no evidence of fading, and agrees with Matagorda birds of comparable season in the clear gray upper parts, moderate degree of white wing-edging, and pale underparts with faint buffy wash. The primaries of the type are badly broken on both sides, but in each case one or more of the longest remain, so as to yield approximately correct wing-lengths; one rectrix may have been pulled loose, as it is about 2.5 mm. longer than any other. My measurements of the type are: wing, 59.5, 60.5 mm.; tail, 54.5 mm.; culmen, about 10.0 mm. if measured to base of skull (slight dermestid work makes measurement of exposed part uncertain); and tarsus, 15.5 mm. The wing-measurements given by Sennett check reasonably well with those taken by me if allowance is made for his probably having flattened the wing. His tail-measurement of the type (2.40 in. = 60.96 mm.) is above any I can obtain even by measuring from the end of the oil gland. His figures for another bird ("No. 406 ♀ . . . wing, 2.42; tail 2.52") appear questionable. In no case have I found the tail-length of a specimen from this area to exceed the wing-length, or even to approach it closely. Reference once more to Tables 1 and 2 will show the characters I have found to exist in the Matagorda area (J) and in the area (I) extending northwest from the Gulf coast. Considering the above facts it appears clear that Sennett's type, if not all of his unfortunately few and scattered specimens, represent this extreme southwestern population. If we accept the evidence, then *agilis*, described as large and generally so considered, is pale and very gray, but in fact quite small, males averaging under 61.5 mm. in wing-length. In this restricted sense, it occurs in southeastern Texas, southern Arkansas, and most of Louisiana (I,J). In a sense Oberholser (1938:425–428) has expressed the size and color relationships as I find them, though I think his *P. c.* "*guilloti*" must be considered an intergrading population, occupying much of the range of *agilis* to the west and the western edge of the range of *carolinensis* to the east.

I have already called attention to the decided size gradation from the coastal area toward the north and west, which is actually about equivalent to

that throughout the whole range of the species in the eastern states. As a result of this great discrepancy in size, and minor variations in color already discussed, I am unable to assign to any described race the specimens from Kansas, Oklahoma, and central Texas (M,N,O), which I therefore propose to call

Parus carolinensis atricapilloides, new subspecies

TYPE.—Adult male, presumably breeding, No. 6735, G. M. Sutton, collected by him 10 miles south of Arnett, Ellis County, Oklahoma, May 13, 1936. Measurements of type: wing, 66.5 mm.; tail, 60 mm.; tarsus, 16.5 mm.; exposed culmen, 9.5 mm.

DIAGNOSIS.—Averaging larger than any other described race of *P. carolinensis*, in wing and tail measurements. Fifty-four males measure: wing, 62-69 mm. (65.2±.24); tail, 54-63.5 mm. (57.9±.27). Seventeen females measure: wing, 59-66 mm. (62.8±.48); tail, 51-62 mm. (56.9±.64). Distinguished from *P. c. extimus* by decidedly grayer dorsal coloration at all seasons, comparative obsolescence of rufous or buffy washing on sides and flanks, generally paler coloration, and even larger average size. Most like *P. c. agilis* (as above restricted), but distinguished by much larger average size (see Table 1, Fig. 4, etc.); also by slightly stronger buffy washing on sides, and somewhat more conspicuous pale edgings on flight feathers; tail/wing ratio averaging somewhat higher, and in a few specimens considerably higher, than in *agilis*. Distinguished from *P. c. carolinensis* both by paler and grayer coloration, with much more conspicuous pale edgings on flight feathers, and by decidedly larger size.

RANGE.—The northwestern section of the species' range; from southern and eastern Kansas (Meade, Greenwood, and Douglas counties) south through nearly all of Oklahoma to central Texas. Intergrades with *P. c. extimus* to the east, probably in western Arkansas and southwestern Missouri. Intergrades with *P. c. agilis* to the south and southeast; the zone of intergradation is undoubtedly of considerable width (see Fig. 1, and discussion below), and more material is needed to establish any positive dividing lines.

To indicate the distinctness of the new race, I have set up the "scatter-diagram" shown in Figure 4, in which wing-length is plotted against tail-length for each male specimen in the samples M, N, and O (*P. c. atricapilloides*—indicated by open circles), and for those in samples I and J (*P. c. agilis*—indicated by solid triangles). This method is suggested as a convenient rough test for separation on the basis of two partially correlated characters. We see that the diagonal AB separates all but 6 of the northern birds (89%) from all but 2 (94.5%) of the southern ones, in the observed samples. This diagonal is located by the intersection of the vertical and horizontal dash lines

shown; these in turn were established by taking the point of statistically best separation on the basis of each measurement alone, as indicated. I have arbitrarily selected a line following roughly the 500-foot contour, from west of San Antonio to extreme southeastern Oklahoma and western Arkansas, which on the basis of the scattered material at hand may represent roughly the region of sharpest size-gradation. Samples K and L from this zone of intergradation, I have not used in Figure 4. The few birds in sample M average smaller than those in N and O, and thus still tend toward *agilis;* one

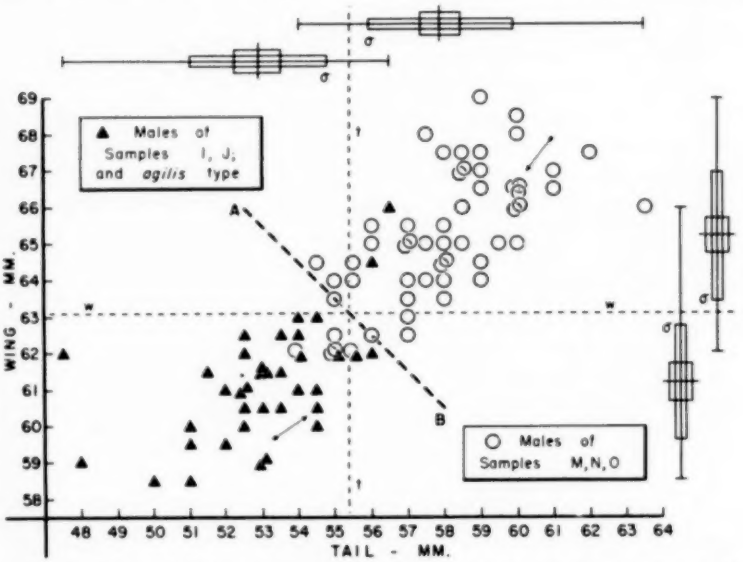

FIG. 4. Degree of distinctness on basis of wing- and tail-length between *P. c. agilis* (triangles) and *P. c. atricapilloides* (circles). AB: line of best separation, based on lines *tt* and *ww*, for each measurement alone, located by the standard deviations. Arrows indicate types. (See Fig. 1 for location of samples.)

of 7 males falls below the dividing line and another on it; they were nevertheless treated with the northern samples, in a deliberate attempt to make the test as rigorous as possible with the material available. As is clear from Table 1 and Figure 2, there is no significant difference between samples N and O. For added comparison, the collective statistics for MNO and for IJ have been added to Table 1.

SUMMARY

On the basis of specimens examined, I have outlined some slight extensions of the range of *P. carolinensis* to the northwest. My comparative data demon-

strate some of the major variational trends within this species. The most prominent of these are a cline of increasing size from south to north, and one of increasing brownness from west to east. On this basis the most logical treatment appears to me to be the recognition of four races: *extimus* (large and brown) in the northeast; *carolinensis* (small and brown) in the southeast, of which *impiger* may be considered an extreme; *agilis* (small and gray) in the southwest; and *atricapilloides* (described above—large and gray) in the northwest. This can be done without radical change in our present concepts, save for the splitting of *agilis* into two forms; additional characters serve for further separation of the several races. No very precise range limits have been outlined here for any of the subspecies and I feel that this is neither possible nor necessary at the present time, considering the clinal nature of much of the variation.

Of secondary concern, and presented only as a basis for further investigation, is the matter of general increase in tail/wing proportion in the larger populations of *P. carolinensis* (especially noticeable in *P. c. atricapilloides*), which tends to approach the reduced ratio of the smaller races of *P. atricapillus*. I have indicated the need for care in identification, and for much careful field work in critical areas.

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NOTES ON THE ECOLOGY OF THE SHORT-BILLED MARSH WREN IN THE LOWER ARKANSAS RICE FIELDS

BY BROOKE MEANLEY

THE Short-billed Marsh Wren (*Cistothorus platensis stellaris*) fitted into an unusual ecological picture as a late summer nesting bird in the lower Arkansas rice fields in 1950. Not until the rice began to approach maturity in the middle of August did this species reach the height of its nesting season; in fact it seemed not to be present at all about the rice fields until the rice attained a height of about two feet. Since this occurred about the second week in July, 1950, the Short-billed Marsh Wren appeared in the area on or shortly after this time.

I spent an average of ten hours daily working about the rice fields of Arkansas County, near Stuttgart, from the first of June through the rest of the summer of 1950, and not a single marsh wren was heard singing in a rice field until July 6. After that date, they became increasingly abundant, and by the middle of August about a third of the rice fields in the area had a few pairs, the number of pairs depending largely upon the variety of rice.

Acknowledgments

I am indebted to E. R. Kalmbach and Johnson A. Neff of the Denver Wildlife Research Laboratory, U. S. Fish and Wildlife Service, for reviewing the manuscript, and to Gorman Bond of the Section of Distribution and Migration of Birds, U. S. Fish and Wildlife Service, and Robert Newman of the Museum of Zoology, Louisiana State University, for the subspecific identification of several birds mentioned in this paper.

The Lower Arkansas Rice District

The city of Stuttgart is the "capital" of the lower Arkansas rice district. It is located in that part of Arkansas County known as the Grand Prairie. Physiographically, the Grand Prairie is reputedly a true prairie land, and has never been forested except along the streams and bayous. Ecologically, the area can be divided into three major types: rice field (rotated with soybeans, lespedeza, and oats), bayou, and edge. A small percentage of undifferentiated land-use types exists. Among these are scrubby fields, pastures, and towns.

Typical breeding birds of the rice fields are the King Rail (*Rallus elegans*) and the Short-billed Marsh Wren; of the edge, Red-winged Blackbird (*Agelaius phoeniceus*) and Dickcissel (*Spiza americana*); and in bayous, Red-bellied Woodpecker (*Centurus carolinus*), Acadian Flycatcher (*Empidonax*

virescens), Carolina Wren (*Thryothorus ludovicianus*), and Parula Warbler (*Parula americana*). The dominant macro-vegetation of the bayous is the bitter pecan (*Carya aquatica*), willow oak (*Quercus phellos*), and overcup oak (*Quercus lyrata*).

Rice Culture in Arkansas County

About 100,000 acres of rice are planted annually in Arkansas County. This acreage is approximately 25 per cent of the state's output, which, in turn, is 20 per cent of the entire rice crop of the United States. The half dozen varieties of rice commonly grown in the county are Zenith, Blue Rose, Blue Bonnett, Rexark, Nira, and Cody.

Rice is planted from early April to the middle of June. It is generally sown dry, and after the young plants reach a height of about six inches the field is flooded to aid the normal growth of the rice and to keep the various weeds from getting a start in the field. The field remains in this inundated state for about two weeks. It then is drained for a short period, then flooded to a depth of 6 to 12 inches a second time, and not drained again until time for harvesting.

Marsh Wren Nesting Environment

As the rice attains a height suitable for nesting cover about the middle of July, the Short-billed Marsh Wrens move into the rice fields, presumably from nearby grassy canal banks and fallow fields. The fields selected for nesting in 1950 were those most advanced in development, and usually those with the greatest number of weeds. The weedy rice fields provide a dense cover and some of the materials out of which the wren builds its nest. The weeds seldom reach the height of mature stands of rice, which is approximately 40 inches.

Dominant weeds of the rice fields in the Stuttgart area (see Prince, 1927: 1–10) are *Paspalum floridanum*, *Panicum dichotomiflorum*, *Echinochloa colonum*, *Echinochloa crusgalli*, *Cyperus strigosus*, *Fimbristylis autumnalis*, *Sesbania macrocarpa*, *Aeschynomene virginica*.

Nesting

The A. O. U. Check-List (1931:249) and Bent (1948:274) list the southern nesting limit of the Short-billed Marsh Wren as central Missouri. Thus, these observations extend considerably the known southern nesting limit of this species. Bent lists August 19 as the latest nesting date for this species. Eggs and young found during the first two weeks of September, 1950, in the Arkansas rice fields also extend somewhat the known length of the nesting period.

While it was difficult for me to believe that this species would be nesting so late in the summer, even when I saw male birds singing in rice fields throughout the day in August, a male and a female which I collected on

August 13 provided evidence of nesting. Testes of the male measured 10 mm. in length, while the female had a well-developed brood patch. Furthermore, territorial relationships of singing males were quite evident.

Proof of breeding was obtained when I discovered a nest with six eggs on August 20. The nest, located in a field of "Cody" rice, drained and ready for harvesting, was constructed mainly of the leaves of the rice plant (*Oryza sativa*) and a sedge (*Fimbristylis autumnalis*), and was approximately eight inches from the ground. The nest could not have been built at this low height before the draining of the field just prior to harvesting, since this field was flooded to a depth of 12 inches. I found a second nest containing one fresh egg on August 29, and a nest containing five large young on September 10.

Nesting Density

I censused singing males in seven rice fields totaling 453 acres during the first two weeks in August to see if a correlation existed between nesting density and the development of various varieties of rice. The results showed that the earliest maturing varieties had the highest densities of marsh wrens. A 60-acre field of the "Cody" variety, in the late dough stage in early August, had 12 singing males. A 63-acre field of "Cody" in the same stage of development held 5 singing males. Two fields of the "Blue Bonnet" variety with 35 and 150 acres each, and maturing almost a month later than the "Cody" fields, had one and two singing males respectively.

Effect of Harvesting During Nesting Season

Birds nesting in a rice field which is harvested by a binder have little or no chance of succeeding, since this machine destroys practically all nests it passes over. Probably the only survivors in a field harvested by a binder would be those which nested early so as to have their young already out of the nest by harvest time. Fortunately for the marsh wrens, the combine now almost entirely has replaced the binder as a rice harvesting implement. A combine leaves a stubble 12 to 18 inches high—sufficient cover for any normally placed nest. The victims of this method of harvesting would be only those whose nests were in the path of the wheels, an area which I estimate to be about one-third of the field.

Twelve pairs of nesting marsh wrens were present in one rice field at harvesting time, September 4. On September 10, at least five pairs remained and there may have been others. I found a nest containing five young, a family with three fledged young, and three males singing in territories in this field on September 10.

The nesting season seemed to have ended about the middle of September. By September 15, I could find no singing males and there was no other evidence of nesting.

Summary

1. The lower Arkansas rice district is a true prairie land with an impervious sub-soil, providing ideal conditions for rice-growing, and, in turn, nesting habitat for the Short-billed Marsh Wren.

2. Rice is planted from April to June and is harvested from late August through October. During the greater part of the growing season the fields are inundated.

3. The nesting season of the Short-billed Marsh Wren in Arkansas rice fields coincided in 1950 with the maturing of the rice crop in late August.

4. Fields selected for nesting are usually those with the rice furthest along in development in early August, and those with a greater number of weeds (sedges and grasses).

5. Late summer nesting dates are as follows: August 20 (6 eggs); August 29 (1 egg); and September 10 (5 young).

6. The nesting of this species in the Stuttgart area considerably extends southward the known limit of the breeding range.

7. That some correlation exists between nesting density and development of different varieties of rice is shown by the greater number of singing males in the earlier maturing varieties.

8. The nesting population is somewhat affected by harvesting operations. Machinery destroys some of the nests, causing the wrens to desert the field. Otherwise, the remaining stubble provides adequate cover for the surviving birds to complete nesting, particularly where the rice is combined rather than harvested with a binder.

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U. S. Fish and Wildlife Service, Stuttgart, Arkansas, October 17, 1950

NEW AND ADDITIONAL RECORDS OF UTAH BIRDS

BY WILLIAM H. BEHLE AND ROBERT K. SELANDER

SINCE the appearance of the two check-lists of the birds of Utah (Behle, 1944, and Woodbury, Cottam and Sugden, 1949), some birds new to the state have been noted and several additional records of some of the rarer birds have accumulated. In making these data available, we also wish to correct a few inadvertent errors, oversights, and ambiguities currently in the literature of the ornithology of Utah. All specimens mentioned below are in the University of Utah Museum of Zoology (hereinafter abbreviated U.U.M.Z.). We are indebted to John Bushman, Clifton Greenhalgh, G. Hortin Jensen, Clark Johnson, C. W. Lockerbie, Richard D. Porter, and Aaron Ross for collecting or bringing into the museum several of the important specimens.

Anser albifrons frontalis. White-fronted Goose.—Although there are several records for Utah, they are mostly observations. Two specimens have been taken: female, Bear River Gun Club, mouth Sulphur Creek, 18 miles west Brigham, Boxelder County, September 28, 1928; male, Lake Front Gun Club, 4300 feet, Salt Lake County, October 10, 1948.

Chen rossii. Ross's Goose.—This species is a casual migrant but we are not aware of specimens having been previously reported from the state. A male was taken at the Bear River Refuge, 4300 feet, Boxelder County on October 27, 1949.

Anas rubripes. Common Black Duck.—Two records were cited by Behle (1944:69). Without indication of the basis for their conclusion, Woodbury, *et al.* say that the species is a "casual migrant and winter resident, both native and introduced. Most specimens have been hybrid crosses with mallard." A female shot at Farmington Bay on November 22, 1951, now No. 11890 U.U.M.Z., constitutes another definite record.

Aythya marila nearctica. Greater Scaup Duck.—The Greater Scaup is uncommon as a migrant through the state. There are two specimens in the U.U.M.Z. Both are males, one having been taken at the mouth of Bear River, Boxelder County, October 19, 1932, the other at Farmington Bay Refuge, 4300 feet, 12 miles north Salt Lake City, Davis County, March 27, 1949.

Tringa solitaria solitaria. Solitary Sandpiper.—Woodbury, *et al.* (1949:13) indicated that the form *T. s. cinnamomea* is a casual summer resident breeding in Uintah and Kane counties, and an uncommon migrant through the state. The two specimens from Kane County that they referred to (U.U.M.Z. 2635 and 2636) are instead Spotted Sandpipers (*Actitis macularia*) in winter plumage.

A record of *Tringa solitaria* possibly breeding in central-western Utah is afforded by a specimen taken at Ibapah, 5200 feet, Tooele County, on July 15, 1950. It was a male with testes 12 mm. long, and was one of a pair. Richard Porter, who collected the specimen, said these two sandpipers would not leave a certain area along an irrigation canal. From these data we infer that they were breeding and thus should be referred to *T. s. solitaria* (see Conover, 1944). The wing of the specimen obtained measures 130 mm. and the culmen, 31.0 mm. The back seems olivaceous and is spotted with white. A white supraloral streak and dark loral streak extend part way to the eye. The primaries are immaculate.

These two birds from Ibapah and those reported by Twomey (1942:392) from the Uinta Basin of northeastern Utah, which were also probably breeding, seem to be among the southernmost records of breeding birds for the species. According to Conover (*op. cit.*: 541), *T. s. cinnamomea*, the northern race, migrates mostly west of the Mississippi, so should ultimately be found in Utah. The only other two examples we have from Utah, although not breeding birds, seem to be closest to *T. s. solitaria*. One is a male taken at Farmington Bay, 4300 feet, Davis County, May 10, 1950. Its wing measures 132.5 mm. and the culmen 28.0 mm. The other is an unsexed specimen, probably a female, taken July 9, 1937, at a pond in Monument Valley, 5400 feet, two miles southwest of Poncho House, San Juan County, Utah, reported by Woodbury and Russell (1945:48). Its wing measures 140.8 mm. and the culmen 31.1 mm. Another specimen, a male, taken July 14, 1937, at mud flats at Kayenta Reservoir, 5500 feet, Navajo County, Arizona, has a wing measurement of 136.1 mm. and a culmen of 31.2 mm. Its testes were not enlarged.

Erolia alpina pacifica. Red-backed Sandpiper.—In Utah this species is an uncommon but regular migrant, known to occur from May 1 to 26 and August 11 to November 18, according to Woodbury, *et al.* (1949:14). Apparently, this is based principally on sight records. Since few specimens have been collected, it seems desirable to report two specimens in the U.U.M.Z. collection. Both are females: one was taken at the mouth of the Bear River, Boxelder County, May 26, 1932; the other, at Farmington Bay Refuge, 4300 feet, Davis County, May 10, 1950.

Limnodromus griseus. Short-billed Dowitcher.—Woodbury, *et al.* (1949:13) listed *L. g. griseus* as a "casual but probably regular migrant through the state; available dates are May 20, July 21, August, September 17, 30." It is not indicated whether specimens are the basis for the records. In his revision of the genus, Pitelka (1950:48) listed only a single specimen of *Limnodromus griseus* from Utah which he assigned to the race *L. g. hendersoni*. It is an adult male taken on May 20, 1915, at the mouth of the Bear River. We can report a second record (U.U.M.Z. 8311) of this race, namely an adult female, in almost complete winter plumage, taken on August 17, 1946, also at the Bear River Refuge. It appears that this species is relatively uncommon in Utah, there being but two definite records.

Limnodromus scolopaceus. Long-billed Dowitcher.—Woodbury, *et al.* (1949:13) stated that *L. griseus scolopaceus* (=*L. scolopaceus*, Pitelka, 1950) is an "abundant migrant through state, concentrating in large flocks mainly in Great Salt Lake and Utah Lake valleys, recorded from March 29 to May 13 and August 13 to November 5, but stragglers as late as December 12." These dates probably are based mainly on sight records and may refer to both species.

An earlier spring date than Woodbury, *et al.*, gave pertains to three examples of *L. scolopaceus* (2 adult males, 1 adult female) taken March 23, 1949, at Deckers Lake, 4300 feet, Salt Lake County. Of these, one male is in complete winter plumage, another shows a few feathers of the nuptial plumage on the breast and scapular region, and the female has feathers of the breeding plumage on the breast, belly, back, and upper wing-coverts.

Micropalama himantopus. Stilt Sandpiper.—Woodbury, *et al.* (1949:14) listed this species as a casual migrant on the basis of a specimen taken in 1893, labelled merely "Utah," a sight record of several at Bear River Marshes, July 26, 1932, and a specimen (U.U.M.Z. 11889) from Moab, taken in 1936. The latter, however, we find is a skin of the Long-billed Dowitcher (*Limnodromus scolopaceus*).

Columba fasciata fasciata. Band-tailed Pigeon.—A male was taken at New Harmony,

5250 feet, Washington County, June 24, 1950. The bird was one of a small flock flying along a stream in a Gambel oak-yellow pine community.

Coccyzus erythropthalmus. Black-billed Cuckoo.—Heretofore this species was unknown from Utah. An adult female was obtained when it flew into a window at Bountiful, 4400 feet, Davis County, July 9, 1951. The bird was breeding, since it had a brood patch, an enlarged ovary and oviduct, and an egg 12 mm. in diameter in the oviduct. The Black-billed Cuckoo has been reported in eastern Montana (Saunders, 1921:71), eastern Colorado (Ridgway, 1916:39), and Idaho (Arvey, 1947:202).

Chordeiles minor minor. Eastern Nighthawk.—A male Nighthawk, collected May 29, 1942, at the mouth of Ogden Canyon, 4300 feet, Weber County, Utah, is referable to *minor* in both color and size. The specimen is the second record for Utah of this transient subspecies.

Colaptes auratus luteus. Northern Flicker.—The Yellow-shafted Flicker is uncommon in Utah. One flew into a window of a residence in Salt Lake City on April 5, 1950, and was obtained as a specimen. It was an adult male with testes slightly enlarged. Although closer to *C. a. luteus*, the specimen is a hybrid with *C. cafer collaris*. It has the red malar stripe and gray throat and neck of *C. cafer*, but the scarlet nuchal band of *C. auratus;* the lining of the wings and tail, while predominantly yellow, actually is intermediate between the normal colors of the two species.

Twomey (1942:406) stated that he found no indication of hybridization in the 9 specimens of *C. c. collaris* that he took in the Uinta Basin or in several others observed there. A breeding female in the U.U.M.Z. collection, taken at Dry Fork Canyon, 6000 feet, 15 miles north of Vernal, Uintah County, on June 28, 1950, has the outer tail feather on the right side yellow-orange, indicating some hybridization with *C. auratus* in that geographic area. Several other examples of *C. c. collaris* from various parts of the state show indications of hybridization, especially in possession of a light nuchal band.

Progne subis subis. Purple Martin.—Twomey (1942:417) found this species nesting in bird boxes about the town of Vernal and observed pairs in Ashley Creek Canyon and along the Duchesne River. Woodbury, *et al.* (1942:22) indicated that martins breed in colonies in aspens in the mountains of Utah. Actually, few observations have been made of the species in the state, and apparently specimens have not been reported. It is of interest, therefore, that, during the summer of 1950, we discovered two colonies in the Wasatch Mountains. They were fairly common at Payson Lakes, 8300 feet, 12 miles southeast of Payson, Utah County, between July 10 and 13, 1950. The birds frequented boggy areas surrounding the lakes where they nested in cavities in the aspens in association with Violet-green Swallows (*Tachycineta thalassina*), Tree Swallows (*Iridoprocne bicolor*), and Red-naped Sapsuckers (*Sphyrapicus varius*). The martins were feeding young at the time. Fourteen specimens were obtained as follows: 2 second-year females, 1 adult female, 4 males in adult plumage, and 7 males in second-year plumage. All were presumably in breeding condition since their gonads were enlarged (testes 8-15 mm. long). We saw few adult males.

On July 10, 1950, two adult male Purple Martins were collected by Richard Porter in a similar environmental situation at Squaw Flat, Monte Cristo, 8000 feet, Weber County.

Although Ridgway (1877:459) reported Purple Martins as "extremely abundant" among the aspens near Parleys Park (near Snyderville, 7000 feet, Summit County) in 1869, they have not been found there in recent years, despite extensive field work, although, seemingly, the habitat is similar to that at Payson Lakes and Monte Cristo.

Hylocichla guttata guttata. Alaska Hermit Thrush.—Another of the few examples of this casual migrant taken in Utah is an adult male obtained at the Bear River Refuge, 4300 feet, Boxelder County, on October 15, 1950.

Hylocichla guttata slevini. Monterey Hermit Thrush.—Two migrant Hermit Thrushes have recently been identified for us as of this race by A. H. Miller. Both are males, one from one mile west of Farmington Depot, 4350 feet, Davis County, April 27, 1948, the other from along the Surplus Canal, 4300 feet, 5 miles northwest of Salt Lake City, Salt Lake County, May 9, 1949. In size and color they resemble breeding birds from Atlin, British Columbia. These two examples are similar to three specimens that Woodbury, *et al.* (1949:25) called *H. g. oromela* (as noted on the labels, U.U.M.Z. Nos. 6721, 6722, 4076). The data for these latter three are as follows: male, mouth of Bear River, below Bear River Club, 20 miles west of Brigham, Boxelder County, May 22, 1933; female, Clear Creek (Raft River Mountains), Boxelder County, May 9, 1933; female, Salt Lake City, Salt Lake County, May 20, 1937.

Hylocichla fuscescens salicicola. Willow Thrush.—Although the early collectors in Utah, notably Ridgway, reported this species as fairly common in the Wasatch Mountain area, no specimens were obtained. Through subsequent years no examples were collected, and, even though some observers occasionally reported the species, we felt that either it did not actually occur in Utah or was much less abundant than in earlier times. On June 14, 1951, we collected a male from a willow thicket along Clear Creek, 5500 feet, Raft River Mountains, 3 miles southwest of Nafton, Boxelder County, Utah. The bird may have been breeding since its testes were 10 mm. long.

Regulus satrapa olivaceus. Western Golden-crowned Kinglet.—This species is not listed for the Uinta Mountains by Twomey (1942:433) although Woodbury (1939:159) reported sight records in that area made by Clarence Cottam. We shot a male at the mouth of Brown Duck Canyon, near Moon Lake, 8500 feet, Duchesne County, on September 2, 1948.

Anthus spinoletta alticola. Rocky Mountain Pipit.—Pipits have long been known to be summer residents in the Uinta Mountains and have been presumed to occur in other high mountains of the state. We recently obtained proof of their presence in the Wasatch and Deep Creek mountains of northern Utah. Six specimens (2 adult males, 1 immature male, 2 adult females, and 1 immature female) were secured on the talus slopes of Devil's Castle Mountain, 10,000 feet, Alta, head of Little Cottonwood Canyon, Salt Lake County, on August 4, 1949. An adult female was obtained by Richard Porter from near the summit of Bald Mountain, 11,000 feet, Deep Creek Mountains, Juab County, June 5, 1950, and a male was taken from the cirque between Mt. Ibapah and Bald Mountain, 11,600 feet, Deep Creek Mountains, July 2, 1950. The latter specimen had testes 8 mm. long. The Deep Creek Mountain specimens represent a considerable extension of range in Utah and, to our knowledge, the first probable breeding record from a mountain range in the Great Basin.

Bombycilla cedrorum. Cedar Waxwing.—Although this species is considered to be a casual breeder in northern Utah, as well as a sporadic winter resident throughout the state, breeding records authenticated by specimens are few. Specimens in the U.U.M.Z. collection representing probable breeding records are as follows: A pair was collected at Paradise, Cache County, July 24, 1932. Two males and two females were taken May 12-13, 1946, in Cave Lakes Canyon, 5 miles northwest of Kanab, Kane County. They behaved as though paired and about to nest. An adult male in worn plumage, testes

3 mm. long, was taken August 16, 1949, at the Farmington Railroad Station, 4300 feet, Davis County. It was one of three seen in a willow clump.

Vireo solitarius plumbeus. Plumbeous Vireo.—Woodbury, *et al.* (1949:27) said this form was a summer resident, "mainly of pigmy conifers, possibly in oak brush or streamside vegetation; breeding not known." Twomey (1942:436) collected four breeding specimens in the Uinta Mountains and regarded it as "a sparsely distributed summer resident." We secured three breeding specimens from the Uinta Mountains on June 27-29, 1950, at Dry Fork Canyon, 6000 feet, 15 miles north of Vernal. These corroborate the breeding status of the Plumbeous Vireo in Utah because the two males which we collected had enlarged testes and the female had a brood patch.

As to the habitat preference, we have found these birds occurring in summer not so much in the juniper-piñon pine or oak belt associations as in a canyon bottom habitat of willows, cottonwoods, and associated vegetation. Twomey found them along the watercourses of the Uinta Basin and stated (*loc. cit.*) that "it nests only in very restricted areas in the lower valleys where it can find water and dense cover."

Mniotilta varia. Black and White Warbler.—Following a period of snow and cold, a specimen was picked up on December 10, 1951, in the yard of a resident on the east bench of Salt Lake City. This apparently constitutes the first record for the state. The species has been reported, however, as occurring casually in Wyoming, Montana, and Colorado.

Vermivora celata celata. Orange-crowned Warbler.—Two early fall migrants are a female taken September 3, 1949, at Arcadia, 5000 feet, 14 miles northeast of Duchesne, Duchesne County and a female taken at Lake Solitude, 9033 feet, near Silver Lake Post Office (Brighton), Salt Lake County, on September 4, 1945.

Dendroica townsendi. Townsend's Warbler.—Woodbury, *et al.* (1949:29) indicated May 27 as the latest known date of occurrence of Townsend's Warbler in Utah in spring. We collected an adult female in the Deep Creek Mountains, head of Pass Creek, 8000 feet, 6 miles east of the Goshute Indian Village, Juab County, on June 7, 1950. This bird may have been an extremely late migrant, but the small size of the ovary suggests that it was a non-breeding individual which failed to complete its northward migration.

The same authors gave the known fall migration dates as August 10 to October 9. An immature female was taken at Alta, 9000 feet, head of Little Cottonwood Canyon, 15 miles east of Salt Lake City, Salt Lake County, on July 28, 1949. It was extremely fat.

Seiurus noveboracensis limnaeus and *S. n. notabilis.* Water-thrush.—The Water-thrush occurs as a casual migrant in Utah, eight specimens having thus far been reported, all as of the race *notabilis* (see Woodbury, 1939:161; Twomey, 1942:445; and Behle and Ross, 1945:169). A male specimen collected May 10, 1949, from a willow and rose streamside habitat at the entrance of Farmington Bay Refuge, 4300 feet, Davis County, was identified for us by A. H. Miller, on the basis of color, as of the race *limnaeus.* It is, however, somewhat atypical by reason of its large size (wing 77.4, tail 54.8, tarsus 21.5 mm.) An additional record of *notabilis* is a female taken May 15, 1949, along a stream three miles east of Benjamin, 4400 feet, Utah County. Selander saw a single Water-thrush in similar habitat near Snyderville, 6900 feet, Summit County, May 14, 1949.

Setophaga ruticilla tricolora. Northern Redstart.—This species has been considered as a rare breeder in northern Utah. Records were summarized by Ross (1944:129), and Twomey (1942:449) reported two fall records for the Uinta Basin. A probable breeding record for that region is a male adult which we obtained at Merkley Park, 6000 feet,

Ashley Creek, 10 miles north of Vernal, Uintah County, June 12, 1949. An immature female also was taken at Arcadia, 5000 feet, 14 miles northeast of Duchesne, Duchesne County, September 3, 1949. Several redstarts, presumably migrants, were observed on the north side of the Uinta Mountains on September 12, 1950, in streamside vegetation at Hideout Canyon, 5800 feet, along the Green River, Daggett County.

Icterus parisorum. Scott's Oriole.—An unpublished record of this rare species in Utah is of a female in first-year plumage which was shot by John Bushman, May 20, 1951, in a juniper-piñon pine association at the Ekker Ranch, 6000 feet, in the Robbers' Roost country, 25 miles east of Hanksville, Wayne County.

Guiraca caerulea interfusa. Western Blue Grosbeak.—Hitherto known only from southern Utah, a considerable northward extension of range in Utah is indicated by a male which was caught in a trap at the Upland Game Bird Refuge, 5200 feet, Vernal, Uinta County, in June, 1950. Remnants of the bird were saved as evidence. Seemingly, the species is not of accidental occurrence in the valley for another adult male was seen at Vernal on August 4, 1951.

Hesperiphona vespertina brooksi. Western Evening Grosbeak.—Although common in winter, especially during 1950-1951, summer records for Utah are few and are mostly sight records. Twomey (1942:459) collected three specimens on July 2 and 3, 1937, which he called *H. v. montana* without critical comment. An adult male was taken at Parley's Park, two miles south of Snyderville, Summit County, on August 6, 1949. It was perched in a cottonwood tree with another Evening Grosbeak, presumably the female. The male taken was in worn breeding plumage and its testes were 5 mm. long. On the basis of the large bill (depth 15.4 mm. and width at base 13.9 mm.) it is referable to the race *brooksi.*

Leucosticte atrata. Black Rosy Finch.—Probable breeding status of this finch in the Wasatch Mountains, as well as the Uinta Mountains, was established when we collected four examples (adult male, adult female, immature male, immature female) on the talus slopes of Devil's Castle Mountain, 10,000 feet, at Alta, head of Little Cottonwood Canyon, Salt Lake County, August 4, 1949.

Calamospiza melanocorys. Lark Bunting.—Known chiefly as a migrant, it has also been considered a probable breeder. Suggestive evidence of breeding status is afforded by an adult male, testes 15 mm. long, collected in a wet pasture at Murray, 4400 feet, Salt Lake County, June 11, 1950.

Ammodramus savannarum perpallidus. Western Grasshopper Sparrow.—In reporting that no recent records of this species are available from areas other than the Uinta Basin, Woodbury *et al.* (1949:33) overlooked a recent record from west of Salt Lake City by Behle and Ross (1945:169).

Pooecetes gramineus affinis. Oregon Vesper Sparrow.—This sparrow was reported previously as a casual migrant in Utah on the basis of two specimens from Garfield County. There are now two other records. One is of an immature female from the junction of the Virgin and Santa Clara rivers, 2700 feet, two miles south of St. George, Washington County, taken September 11, 1941. The other is an immature of undetermined sex taken at Farmington Bay Refuge, 4300 feet, Davis County, September 1, 1949.

Zonotrichia querula. Harris's Sparrow.—Another record to add to the few for the state is of a female from two miles west of Mt. Pleasant, 6000 feet, Sanpete County, February 4, 1951.

Zonotrichia coronata. Golden-crowned Sparrow.—In reporting the available records of this species for the state, Woodbury, *et al.* (1949:35) overlooked the record from Standrod, Boxelder County, by Greenhalgh (1948:46).

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THE ALDER FLYCATCHER IN WASHTENAW COUNTY, MICHIGAN: BREEDING DISTRIBUTION AND COWBIRD PARASITISM

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THE Alder Flycatcher (*Empidonax traillii*) is, taxonomically, a much-discussed species about whose detailed breeding distribution little has been written. It has been shown (Berger and Hofslund, 1950; Berger, 1951b) that this species is a common breeding bird in the Ann Arbor region. In 1951, we decided to make a survey of the breeding Alder Flycatchers in Washtenaw County, Michigan. We wanted to determine whether the species breeds throughout the county and whether it is as abundant elsewhere as in Ann Arbor Township. Although we had done no previous field-work in 12 of the 20 townships, we thought, from past experience, that it would be a simple matter to locate the flycatchers by their song as we drove slowly along county roads. We found on July 1 and thereafter, however, that the males sang from dawn to about 8:30 a.m., were generally quiet throughout most of the day, and began to sing vociferously about 8:00 p.m. Singing stopped again about 9:00 p.m. (see McCabe, 1951, regarding morning and evening song in Wisconsin). During most of the day, therefore, it was necessary to stop and search for the birds in what we believed to be suitable habitat. With the exception of Sharon Township and one locality in Ann Arbor Township, we avoided rivers in our survey because we wished to emphasize the fact that in southern Michigan the Alder Flycatcher habitually nests in the vicinity of ponds and potholes and in a dry habitat, as well as along rivers and in extensive marshes. We were unable to detect any differences in the songs and call-notes given by birds living in the wet and the dry habitats.

We found the first nest on June 4, 1951, and five additional nests under construction on June 8, but the survey itself was not begun until June 22. It was completed on July 7. Time available for the study was limited: the longest period in the field on any one day was six hours, the shortest period, one hour. Parts of seven days (27 hours) were spent in the survey. We drove 340 miles. In most townships we searched only long enough to find one nest, although we noted the number of birds seen or heard. This report obviously is not a breeding census, but rather a survey to show that the Alder Flycatcher is generally distributed in Washtenaw County, and that it does nest in each of the 20 townships of that county.

As indicated above, the number of nests listed after the several townships in Table 1 is not necessarily an indication of the species' abundance. More nests were found in Ann Arbor Township partly because we knew it better

Table 1

Breeding Distribution of the Alder Flycatcher in Washtenaw County in 1951

Date	Township	Section	Nest-site	Nest Contents
June 22	Ann Arbor	27	1. Cornus	4 eggs.
			2. Salix	1 Cowbird egg and 3 host eggs.
			3. Cornus	1 Cowbird egg and 4 host eggs.
			4. Cornus	3 eggs.
			5. Salix	1 egg.
			6. Salix	1 egg.
			7. Cornus	4 eggs.
			8. Salix	Complete but empty.
June 24	Northfield	31	9. Cornus	3 eggs, 2 of which were broken.
June 24	Ypsilanti	19	10. Crataegus	4 eggs.
June 24	Pittsfield	12	11. Cornus	4 eggs.
June 24	Augusta	20	12. Cornus	4 eggs.
June 24	York	32	13. Alnus	1 egg.
June 24	Saline	28	14. Cornus	1 Cowbird egg.
June 24	Manchester	12	15. Sambucus	1 Cowbird egg and 4 host eggs.
July 1	Salem	5	16. Cornus	4 young about 5 days old.
			17. Crataegus	4 eggs.
July 1	Northfield	1	18. Cornus	2 eggs and 2 recently hatched young.
July 1	Webster	6	19. Cephalanthus	3 eggs.
July 1	Superior	20	20. Cornus	1 egg and 1 day-old dead young.
			21. Cornus	4 young about 3 days old.
			22. Crataegus	Nest under construction.
			23. Crataegus	3 eggs.
July 3	Ann Arbor	31	24. Cornus	4 young about 1 week old.
			25. Crataegus	3 young about 5 days old.
			26. Crataegus	4 young about 2 days old.
			27. Crataegus	1 recently hatched dead young (with most of viscera eaten) lying on ground beneath nest, and 1 day-old young in nest with bloody left scapular region.
		33	28. Cornus	3 eggs nearly ready to hatch.
			29. Ligustrum	4 eggs.
			30. Lonicera	1 Cowbird egg and 3 host eggs.
		36	31. Crataegus	4 eggs.
			32. Crataegus	4 eggs.
			33. Crataegus	2 eggs and 1 young 3-4 days old.
July 4	Ann Arbor	12	34. Crataegus	2 eggs.
			35. Crataegus	3 young about 1 week old.
July 4	Dexter	32	36. Cephalanthus	1 Cowbird about 1 week old and 1 host egg.
July 4	Lyndon	28	37. Cephalanthus	1 Cowbird egg and 3 host eggs.
July 4	Scio	17	38. Cornus	3 eggs.
		25	39. Sambucus	Complete but empty.
July 4	Sylvan	9	40. Cephalanthus	Adult brooding 4 recently hatched young.
		10	41. Nest not found	Adult attending 1 stub-tailed fledgling out of nest 1 or 2 days.
		15	42. Pyrus Malus	Complete but empty new nest.
July 4	Lima	14	43. Alnus	1 egg.
July 5	Lodi	18	44. Cornus	4 eggs.
July 7	Freedom	21	45. Cornus	3 young nearly ready for fledging.
July 7	Sharon	28	46. Cornus	1 Cowbird and 1 flycatcher, both about 1 week old.
July 7	Bridgewater	20	47. Sambucus	4 young about 10 days old.

than the others, and partly because the colonies there were larger. There is, however, considerably more suitable habitat for the Alder Flycatcher in the northern two tiers of townships than in the southern two. In the latter, a high percentage of the land is cultivated or is in woodlots; lakes, ponds, and marshes are relatively uncommon. For example, we found only three pairs of Alder Flycatchers (one pair each in Sections 1, 28, and 29) in Saline Township while driving 34 miles over county roads during a three-hour period. This is about the same length of time that was required to find nests in each

FIG. 1. Typical *Crataegus* habitat of the Alder Flycatcher in Washtenaw County, Michigan, Section 36, Ann Arbor Township. From a Kodachrome transparency taken July 20, 1951, by A. J. Berger.

of five townships in the northwestern corner of Washtenaw County (see data for July 4). In the southern townships, the birds, for the most part, occur as isolated pairs, not in colonies. In the more northern townships, on the other hand, there are many lakes, ponds, and marshes. Here the species is much more common during the breeding season. Furthermore, colonies of five or more pairs may be found regularly. We feel certain that one could find 40 or 50 nests in one day in almost any of the northern two tiers of townships, whereas in some of the southern townships, one would do well to find three or four nests in a full day of searching. In Ohio, Campbell (1940: 195) also noted that: "Unlike other local flycatchers, Alders often nest in small colonies of three to six pairs."

Although meager, information is available which sheds some light on geographical differences in habitat and nest-site preference. We suspect that these differences may be more apparent than real, since the Alder Flycatcher has received little intensive study in the field. Barrows (1912:404) noted that in Monroe County, Michigan, Mr. Trombley "found at least twenty nests in one restricted locality, all in alders, willows or similar low growth in wet ground." Hyde (1939:155) stated that in New York: "The alder flycatcher is well named, for it is seldom seen or heard outside an alder swamp, and few large alder swamps are without at least one pair of the birds." In Ohio, Trautman (1940:295) said that this species "nested almost everywhere about the lake, swamps, lowlands, and creeks where swampy and brushy conditions prevailed. For nesting sites it seemingly preferred brush, 3 to 18 feet high, composed of such trees as small willows, alders, buttonbush, and dogwood." Farley (1901:350) said of Alder Flycatchers in Massachusetts: "So far as I have observed, it nests invariably in a bush, selecting most often a wild rose, or clump of rose shoots or sprays—usually *Rosa carolina* L." He added that once he found a nest in *Spiraea salicifolia*. Mousley (1931:551) stated: "The favourite nesting site around Hatley [Quebec] is in the forks of a spiraea bush, only once have I found a nest in an alder tree, twice in nut bushes, and once in a wild gooseberry bush." Campbell (1936) described a population of Alder Flycatchers in Ohio which nested in cockspur hawthorn. In one wet habitat near Ann Arbor, Michigan, Berger and Hofslund (1950) found the following three plants most often used for nest-sites: nine-bark (*Physocarpus*), 14 nests; dogwood (*Cornus*), 8 nests; willow (*Salix*), 7 nests. In the present study we found nests in the following: *Cornus*, 18 nests; *Crataegus*, 12; *Salix*, 4; *Cephalanthus*, 4; *Sambucus*, 3; *Alnus*, 2; and one each in *Pyrus*, *Ligustrum*, and *Lonicera*.

In Washtenaw County, the Alder Flycatcher frequently nests in *Crataegus* bushes on dry hillsides, usually in the vicinity of small ponds. By the first of July many of these ponds (sometimes not more than 50 feet in diameter) have become dry. Berger has found the Alder Flycatcher nesting in dry habitat in Section 20, Superior Township, and in Sections 12, 27, 31, 33, and 36, Ann Arbor Township. At the University Botanical Gardens (Section 33, Ann Arbor Township), the birds nest most frequently in privet (*Ligustrum vulgare*) and Tartarian honeysuckle (*Lonicera tatarica*), but a nest with one Cowbird (*Molothrus ater*) egg and two host eggs found there on July 20, 1951, was built in a wayfaring tree (*Viburnum lantana*). We assume that one familiar with the southern two tiers of townships would find local breeding populations of Alder Flycatchers in similar dry habitats.

In writing of the Alder Flycatcher, most authors emphasize its propensity for nesting in dense thickets. This is true, in part, in southern Michigan, al-

though the species commonly builds its nests in an isolated bush. When nests are built in dense thickets, however, they usually are placed in the outer edge of the thicket, often in an exposed situation. One frequently can find the nest simply by walking around the margin of a thicket. We also found several nests in road-side shrubbery; one such nest was built only seven feet from the edge of a road. Previous reference (Berger and Hofslund, 1950; see also Fargo, 1928) has been made to the two general types of nests, both of which may be found in the same colony, which are built in southern Michigan: those built in an upright crotch, and those fastened to a horizontal branch. The latter usually are less concealed, whereas the former sometimes are placed within the depths of thickets. In general, however, the bird is an edge-nester.

We found the incidence of Cowbird parasitism (20.8% of 48 nests) considerably higher than in recent southern Michigan observations (8.1% of 37 nests, Berger, 1951a). Gibbs (1890:8) stated that Traill's Flycatcher (=Alder) served as a host in southern Michigan. Bendire (1895:311) noted that: "The Cowbird occasionally deposits an egg in the nest" of the Alder Flycatcher. From data available at the time, Friedmann (1929:209) considered this species a "rather rare molothrine victim," but added further (p. 210): "Cook, in his unreliable list, mentions it as a molothrine host in Michigan." In Ohio, Hicks (1934:386) reported 21% of 108 nests parasitized, and Trautman (1940:296) found 9 out of 16 nests parasitized at Buckeye Lake. On August 19, 1951, Berger found a nest containing three Alder Flycatchers within a day or two of fledging. This nest was a two-storied structure and contained one Cowbird egg and one host egg in the lower story. The only previous report of a two-storied nest of the Alder Flycatcher seems to be that of Anderson (1907:299) who said: "W. A. Bryan has also found a Traill Flycatcher's nest with a Cowbird's egg imbedded."

Much interesting and significant information could be obtained by cooperative studies of a single species in different parts of its breeding range. See, for example, the discussion by Aldrich (1951) regarding difficulties involved in the determination of subspecies of the Alder Flycatcher because data on breeding status were lacking. Of necessity, Aldrich selected arbitrary dates (June 21 to July 26) for deciding which specimens he examined were migrants and which were breeding birds. Similarly, Phillips (1948:507) said that "only from June 25 to July 20 may the birds be presumed to be on their breeding grounds." Four years' observations in the Ann Arbor region have shown us that the breeding season here extends at least from June 4 to August 19. It remains to be determined whether or not late spring or early fall migrants also appear on the breeding grounds during this period.

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Department of Anatomy and Museum of Zoology, University of Michigan, Ann Arbor, September 15, 1951

A NEW OVENBIRD FROM THE SOUTHEASTERN UNITED STATES

BY THOMAS D. BURLEIGH AND ALLEN J. DUVALL

IN THE course of identifying a collection of breeding birds from northern Georgia we were impressed with the distinct appearance of the Ovenbirds at this southern extremity of their breeding range in the eastern United States. A critical examination of over 30 breeding birds revealed the fact that a well-marked subspecies was represented, its characters being as follows:

Seiurus aurocapillus canivirens, new subspecies

Southeastern Ovenbird

Type.—Adult male, United States National Museum No. 342053, Fish and Wildlife Service collection; Margret, Fannin County, Georgia, July 5, 1929; collected by Thomas D. Burleigh, original number 476.

Subspecific characters.—Similar to *Seiurus aurocapillus aurocapillus* (Linnaeus) of the northeastern United States and Canada, but upper parts paler and grayish green rather than bright green. In this respect it suggests *S. a. cinereus* A. H. Miller of the eastern slopes of the Rocky Mountains, but is greener and noticeably less gray above, and the ochraceous-buff of the crown is brighter. From *S. a. furvior* Batchelder, of Newfoundland, it differs in lacking the definite brownish tinge of the upper parts, and in having the markings on the upper breast and sides paler.

Geographic distribution.—Breeds in the southeastern United States from eastern Virginia and West Virginia south to northern South Carolina, northern Georgia, and northern Alabama. In winter south to the West Indies and Quintana Roo.

Remarks.—Superficially this southeastern race of the ovenbird more closely resembles breeding birds from the Rocky Mountains than it does the nominate race. The grayish wash of the upper parts is not so intense as in *cinereus* so the suggestion of green is more noticeable, but in comparison *aurocapillus* is much brighter green above than *canivirens*. Miller (1942. *Condor*, 44:185–186) noted that in a series of eastern birds that he compared with his new race several approached closely the least gray individuals of *cinereus*, and he interpreted these few gray birds as variants of the eastern population rather than as examples of his Rocky Mountain race. These specimens have not been examined in connection with the present study, but they probably were from the southeastern United States, and thus he was justified in hesitating to call them *cinereus*. Birds from western Maryland and Pennsylvania are intermediate in their characters, but closer to *aurocapillus* than to *canivirens*. No-

positive breeding birds have been examined from the District of Columbia and adjacent areas in Virginia and Maryland. Eight spring examples seem to be referable to *aurocapillus*, while 6 are like *canivirens*. Thus, from the available evidence, the region around the District of Columbia is either one of intergradation or the 6 spring examples of *canivirens* represent the breeding form and the other 8 birds seen are migrants of *aurocapillus*.

In describing the races from Newfoundland and from the eastern slopes of the Rocky Mountains, neither Batchelder nor Miller designed the breeding populations to which the name *Seiurus aurocapillus aurocapillus* should be restricted. It seems desirable, therefore, that this be done at this time. *Motacilla aurocapillus* was described by Linnaeus (1766, "Systema Naturae," 1:334) and was based on Edwards' plate and text (1758, "Gleanings of Natural History," 5:91, pl. 252) and on Brisson's description (1760, "Ornithologia sive synopsis methodica," 3:504). It appears that Brisson based his description on Edwards, and that the specimen from which Edwards made his plate was obtained "at sea, in November, 1751, by the late Tho. Stack, M. D. and F.R.S. in his Voyage to Jamaica, as the ship lay becalmed, about eight or ten leagues distant from Hispaniola" (Edwards, *loc. cit.*). Edwards further stated that he received two specimens of the "golden-crowned thrush" from William Bartram of Pennsylvania, which confirmed his opinion that they were "birds of passage." In the collections in the U. S. National Museum, 18 ovenbirds were examined from Haiti. Fifteen of these are typical of the breeding populations of the northeastern United States and eastern Canada, the upper parts being bright green with no suggestion of a gray wash. The remaining three clearly resemble the breeding birds of the southeastern United States. It seems, therefore, that the more northern mainland race is definitely commoner in Haiti in migration than is the southeastern form, and that it should be designated as the nominate race with a breeding range from Nova Scotia south to Pennsylvania.

An examination of material from the western United States indicates that *cinereus* has a much larger breeding range than that given in the original description by Miller. In addition to one example from the type locality, we have studied breeding birds from Glasgow, Leedy, Ekalaka, and Fort Keogh, all in Montana. We have also examined six birds from North Dakota (Fort Rice, Oakdale, and Bismark), two from Wyoming (Bear Lodge Mountain), and one from Missouri (Independence, June 20, 1857).

Although Miller (*loc. cit.*) states that one example from Edmonton, Alberta, is referable to *aurocapillus*, we have seen a specimen from Fort Chipewyan (May 29, 1901) and another from the Slave River (June 10, 1901) which seem referable to *cinereus*. However, an immature in fresh fall plumage from Fort McMurray (Aug. 10, 1903) does not seem referable to either of the two

races expected in northern Alberta. Neither Godfrey (1950. *Canadian Dept. Resources Development Bull.*, 120:72) nor Rand (1948. *Natl. Mus. Canada Bull.*, 111:75) could definitely identify, racially, a small series of birds from southern Alberta and southern Saskatchewan. Additional material and study is needed to determine what race or races breed in Alberta and other prairie provinces of Canada.

Newfoundland breeding specimens from Notre Dame Bay, Badger, Glenwood, and Bonne Bay are all typical *furvior*. Three breeding birds from Tompkins, in extreme southwestern Newfoundland, likewise, are typical *furvior*, as are two May examples. However, two other late May birds from the same locality are inseparable from typical *aurocapillus*. Four fall specimens from Tompkins and Doyles are representative of *furvior*, but a September 8 (1946) example from Tompkins, and two birds which struck the lighthouse at Cape Anguille in the same region in the fall are like typical *aurocapillus*.

With the evidence available from specimens, we are not certain if these spring and fall examples of *aurocapillus* are birds which wandered north from the normal breeding range of *aurocapillus* in Nova Scotia, or if they represent breeding populations from the area about Tompkins, the latter being one of intergradation between *aurocapillus* and *furvior*.

BREEDING DISTRIBUTION of the new race *canivirens* is based on specimens examined in the U. S. National Museum and Fish and Wildlife Service collections from the following localities:—*Georgia*: White Co. (Tray Mtn.), Young Harris, Darien, Decatur, Atlanta, Smyrna, Blood Mtn., Margret, Athens; *North Carolina*: Asheville (Bent Creek), Murphy, Hayesville, Clinton; *Tennessee*: Carter, Parksville, Copperhill, Crossville, Sullivan Co. (Shady Valley), Cosby; *West Virginia*: Pocohontas Co. (Cranberry Glades), Randolph Co. (Cheat Bridge); *Kentucky*: Cooperville, Wayne Co. (Rocky Branch), Lynch; *Alabama*: Aniston; *Virginia*: Belle Haven, Eastville.

MIGRATION of the various races of the Ovenbird may be indicated by identifications of the following specimens taken outside of their known breeding range:—

(*S. a. canivirens*) *Cuba*: Guanajay; *Jamaica*: Moneague; *Puerto Rico*: Vieques I.; *Haiti*: Port au Prince, Little Cayemites; *Virgin Islands*: St. Thomas; *Bahamas*; *Quintana Roo*: Cozumel Island; *Florida*: Key West and Gainesville; *Mississippi*: Horn Island, Deer Island, and Gulfport.

(*S. a. furvior*) *Sinaloa*: near Mazatlán; *Bahamas*: New Providence and Abaco; *Leeward Islands*: Antigua; *Mississippi*: Ariel and Deer Island; *Louisiana*: New Orleans; *North Carolina*: Asheville (Bent Creek) and Statesville; *Georgia*: Athens; *Maryland*: Baltimore and Montgomery Co. (Sligo Branch); *Virginia*: Fairfax County, Shenandoah National Park, and Oakton; *District of Columbia*: Washington Monument; *Pennsylvania*: Rochester; *Ohio*: Painesville; *Ontario*: Toronto.

(*S. a. aurocapillus*) *Panamá*: Chiriquí; *Costa Rica*: Guanacaste (Hacienda Santa Marta); *Guatemala*: Petén (Remate); *British Honduras*: El Cayo; *Caribbean Sea*: Swan Island; *Tabasco*: Teapa; *Veracruz*: Tres Zapotes and Conejo; *Sinaloa*: Mazatlán; *Nuevo Leon*: Monterrey; *Jamaica*: Long Hill; *Haiti*: Cerca La Source, Little Cayemites, Tortuga

L., Caracol, Cahobas, La Gonave, Hinche, Pic de Macaya, Gonave I., Jeremie, and St. Raphael; *Bahamas*: Nassau; *Puerto Rico*: near Mayaguez, N. Guanica Lagoon, Anasco, Guanica, Río Piedras, Cayey, and Culebra I.; *Leeward Islands*: Antigua; *Virgin Islands*: St. Croix (Anna's Hope); *Florida*: Brevard Co. (Padgett Creek); *Mississippi*: Gulfport; *Nebraska*: mouth Platte River; *Georgia*: Athens and Harlem; *North Carolina*: Asheville (Bent Creek); *West Virginia*: Enon.

(*S. a. cinereus*) *Nebraska*: Camp Sheridan; *Chihuahua*: Mesquite (=Mosquito) Springs; *Sinaloa*: Mazatlán; *Yucatán*: Temax.

FISH AND WILDLIFE SERVICE, MOSCOW, IDAHO, AND WASHINGTON, D. C.,
May 28, 1951

GENERAL NOTES

Nest of Red-shouldered Hawk with six eggs.—On February 15, 1943, I noted that a pair of Red-shouldered Hawks (*Buteo lineatus*) were beginning their nesting activities in a small woodland in Jefferson County, Kentucky. A pair of Red-shoulders had nested in that woodland the four preceding seasons.

I made several visits to the nest in early March. I found one egg March 13, two on March 16, three on March 19, and four on March 22. I do not know exactly when these eggs were laid. On March 22 I supposed the last egg had been laid, so discontinued my visits for a time. In previous years the clutch had never exceeded three eggs, and the behavior of the birds, especially that of the highly belligerent female, led me to believe that they were the same pair which had nested there before.

On April 10 there were six eggs. On April 15 the female was still incubating, and since none of the eggs showed any sign of hatching I collected them. All were addled, though the presence of small embryos indicated that incubation had been successful for a time. The embryos may have been killed by the unusually cold weather.

The possibility that two females were responsible for the six eggs seems ruled out by the consistently aggressive attitude of the female throughout my several visits to the nest in 1943. Nor do the measurements of the eggs in any way suggest two "natural" sets. In order of laying (respective order of the last two not known) they measure: 53.5 × 42.5, 52.5 × 42.5, 55 × 42, 54 × 44, 54 × 43.5, 55.5 × 42 mm.

There is general agreement that three or four eggs comprise the usual clutch of this species and three eggs are more usual than four. However, Bendire (1892. *U. S. Natl. Mus. Special Bull.* No. 1, p. 222) recorded a set of six eggs taken by Dr. William Wood, of East Windsor Hill, Connecticut, and another set of six collected by R. B. McLaughlin, of Statesville, North Carolina, April 5, 1889. Sets of this size apparently are very rare. It is interesting to note that two of the three mentioned come from the southern United States, where small, rather than large, clutches might be expected (*cf.* Rensch, 1938. *Proc. Eighth International Orn. Cong.*, Oxford, England, pp. 306, 308).—Thomas P. Smith, *W-5 Green Tree Manor, Louisville, Kentucky, November 10, 1950.*

The status of Barrow's Golden-eye in Kansas.—Barrow's Golden-eye (*Bucephala islandica*) has been reported from Kansas on the basis of six specimens in the University of Kansas Museum of Natural History. I have recently reidentified all six as American Golden-eyes (*Bucephala clangula americana*).

Bunker (1913. *Kansas Univ. Sci. Bull.*, 7:141) first reported Barrow's Golden-eye from Kansas, recording the first five of the specimens listed below as "a new species for the state." Long (unpub. ms.) reported the sixth specimen. All six were reported again as Barrow's Golden-eyes by Long in his "Check-List of Kansas Birds" (1940. *Trans. Kansas Acad. Sci.*, 43:438).

Data concerning these specimens include the following: ♂ KU 6403 (1904, Leavenworth County), ♂ KU 6401 and ♂ KU 6402 (1903, Douglas County), ♀ KU 7744 and ♀ KU 7745 (1909, Douglas County), and ♀ KU 5904 (1911, Douglas County). All three males are in juvenal plumage. Since female and immature male Barrow's Golden-eyes are difficult to distinguish from American Golden-eyes in corresponding plumages, I sent the specimens in question to Dr. Herbert Friedmann for examination. Dr. Friedmann agreed that all of the specimens were American Golden-eyes.

It seems, therefore, that Barrow's Golden-eye must be dropped from the list of birds now known from Kansas. However, the possibility of its occurrence must still be con-

sidered since it is reported in the neighboring states of Colorado (1931. A. O. U. Check-List, 4th Ed., p. 53) and Nebraska (1945. Haecker, Moser, and Swenk, *Nebraska Bird Rev.*, 13:7). Harris (1919. *Trans. Acad. Sci. St. Louis*, 23:237) listed Barrow's Golden-eye as a "very rare winter visitant" in the Kansas City region. He mentions only two "authentic" records. Since, however, his list of birds for this region include some observations made in Douglas County, Kansas, his statement may have been based at least in part on the misidentified specimens.

Long (1940. *Trans. Kansas Acad. Sci.*, 43:438) designated the American Golden-eye as "an uncommon migrant throughout the state." Actually, this species appears to be a regular winter resident although occurring usually in small numbers.—WILLIAM B. STALLCUP, *University of Kansas Museum of Natural History, Lawrence, Kansas, May 28, 1951.*

Birds becoming "caught" in flocks of other species.—Under this caption, in two recent issues of *British Birds* (1950, 43:332-333; 1951, 44:197-201), several observers have reported instances in which single birds, or small groups, of one species, (1) when flushed with a flock of another species, apparently were unable to break away and instead were impelled against their usual flight habits to follow the maneuvers of the preponderant species; (2) seemed to join flocks of a different species voluntarily and participate in their flights. Some incidents recorded by Selous (1905. "Bird Life Glimpses," pp. 60, 127) and several in the *Auk* (1933, 50:211, 355-356) appear to be earlier examples of the second type.

In suburban Baltimore I have seen one occurrence resembling the first type. On the evening of September 21, 1949, I found some hundreds of Starlings (*Sturnus vulgaris*) and a number of Purple Grackles (*Quiscalus quiscula*) in a park wood. Repeatedly, when the Starlings made mass flights from treetops out over the wood and back, some of the grackles took off, circled, and came back with them. Finally, a single great exodus toward a roost one-half mile away cleared the wood of all the birds.

Four times between December 7, 1949, and January 17, 1950, also in suburban Baltimore, I saw Starlings flying with a flock of Rock Doves (*Columba livia*) that usually numbered around 40. Only once did I see the entire incident. That time the pigeons left their loafing roof, made one great circle in the air, and alighted again. Just after they rose, a loose band of 10 or 12 Starlings appeared near them. One of the Starlings entered or was swept up by the fore-edge of the flock of pigeons and flew there through half of the circle before sheering away. On the other three occasions the flying flock was already a mixed one when I sighted it. Once there were 9 Starlings, in two groups, in the fore-edge, and they stayed there, as much a part of the flock formation as the pigeons themselves, during two or three great curves that the birds made. Again, I was just in time to see 3 Starlings drop out of the flying flock. Once, in a flock that I glimpsed for a few seconds, there were 13 Starlings and only 8 pigeons; I saw less than one-fourth of a large circle made that time.

Although the circumstances of the first Starling-pigeon incident suggest "entrapment," the repeated occurrence of these mixed flocks suggests voluntary association. It may be significant that all of the Starling-pigeon incidents noted occurred at about 8 a.m., when the Starlings had only recently arrived at my observation point, 5 miles airline from their downtown roosts. Possibly these birds were still under the influence of their dispersal-flight impulse. Similarly, the grackles of my first observation were keyed for a flight to a roost.—HERVEY BRACKBILL, *4608 Springdale Avenue, Baltimore 7, Maryland, June 29, 1951.*

Western Meadowlark attacks ground squirrel.—While driving along a county road just south of the Cache la Poudre River, three miles west and one mile north of Greeley, Weld County, Colorado, on May 14th, 1951, I saw a Western Meadowlark (*Sturnella neglecta*) fluttering up and down a short distance away. Closer observation revealed that the bird was attacking a thirteen-lined ground squirrel (*Citellus tridecemlineatus*). The bird was hovering over the ground squirrel and repeatedly striking at it as it ran through the grass. The outcome was not learned as the two animals passed from view over a ridge with the meadowlark still in close pursuit.

This seems noteworthy to me since I had not previously seen a meadowlark attack any mammal. I suppose that the ground squirrel had molested or had been near the bird's nest.—CLARENCE A. SOOTER, *5311 West 55th Street, Mission, Kansas, September 27, 1951.*

Harrying of herons by gulls—a further note.—Imhof (1950, *Wilson Bulletin*, 62:210) reported the chasing of a Great Blue Heron (*Ardea herodias*) by a Ring-billed Gull (*Larus delawarensis*), and in view of his notes I (1951, *Wilson Bulletin*, 63:110) reported the chasing of a European Grey Heron (*Ardea cinerea*) by a European Common Gull (*Larus canus*). Since then I have read a comment by Stacey (*circa* 1947, "This Wild Company," Edmund Ward, Leicester, England, p. 52) on the chasing of the Grey Heron by the Black-headed Gull (*Larus ridibundus*). Since the reference may not be readily accessible to my American readers, I quote:

> "Over the Norfolk marshes I have seen how the black-headed gulls will follow and chivvy any heron which flies over their breeding-ground, yet the bittern (according to my limited observations on this bird), so very much like the heron in flight, is tolerated and not interfered with at all. Should a heron happen to cross a field where the peewits nest, the plovers will make the air scream with their frantic attacks until the imagined danger has passed. Why birds should so resent this harmless grey creature I do not know, but perhaps, like all big people, he is good-natured and does not mind."

All three authors express surprise at this persecution of the heron. Note also that Stacey twice comments that it happens when the heron flies *over the breeding grounds* of the other species.

Pereyra (1938, Aves de la zona ribereña nordeste de la provincia de Buenos Aires [Birds of the northeast riverside zone of the province of Buenos Aires]. *Memoirs Zool. Gardens La Plata*, Govt. Print. Office of La Plata, p. 46) speaking of the Black-headed Teal, *Heteronetta atricapilla* (Merrem) says: "This queer duck never makes a nest but lays its eggs in the nests of various species of aquatic birds of a variety of families and orders, for it not only parasitizes other ducks but also coots or gallinules, herons, ibises, and gulls; . . . The strangest is to see them in the nests of white herons or egrets, and I once had the opportunity of seeing a newly hatched duckling in such a nest. It very promptly withdrew to the water, and swimming vigorously attempted to put some distance between itself and the danger, possibly because it might fall victim to those same herons which might either eat it or feed it to their own young."

Witherby, *et al.* (1945 [reprint of vol. 3, 1939], "The Handbook of British Birds." H. F. and G. Witherby, Ltd., London) discuss the food of various herons, and note that a variety of small birds and young of larger birds have been eaten. The prey includes domestic chickens, terns, and Great Crested Grebes. There is therefore no reason to doubt that the young of the lapwing and of gulls would be eaten if opportunity occurred. The behavior of the adults of these species may therefore be not entirely irrational. Most

of these frequently nest in places readily accessible to herons.—F. W. Preston, *Box 149, Butler, Pennsylvania, July 18, 1951.*

Homing ability of female Cowbirds.—Eastern Cowbirds (*Molothrus ater*) possess a marked ability to return to their place of banding. Summaries of the homing ability of Cowbirds banded by William I. Lyon appeared in *Inland Bird Banding News*, Vol. 7, No. 1, p. 7, and Vol. 9, No. 2, p. 10. Fox (1940, *Bird-Banding*, 11:23) recorded a female Cowbird which returned a distance of 107 miles in less than two days, and, on another occasion, the same bird returned 184 miles in one week.

Females seem to return and to repeat in traps more frequently than do males. Nice (1935, *Inland Bird Banding News*, 7, No. 2: 2) noted that of four males and nine females banded, no males returned but she had "two females for two seasons each, and two other females for three seasons."

My records of banded Cowbirds show the tendency of female Cowbirds to remain in a locality throughout the breeding season, and also shows their ability to return quickly to the banding station after being transported distances. These Cowbirds were trapped in a $\frac{3}{4}$ inch chickenwire trap, with open ground funnels, all painted black. Bread and a pan of water were used as bait. All birds recorded here had their band numbers checked in the hand, although some birds were also color-banded.

An adult female Cowbird, banded No. 39-255053 at Harrisburg, Pennsylvania, on May 10, 1948, repeated May 11, 18, June 2, 16, 19, 24 (twice), 25, 27, and 28. On the latter day she was taken 6 miles southwest and released at 7:40 a.m. On July 1 she was back in the trap and continued repeating on July 2 (twice), 4, 5, 6, 7, and 12. In 1949, this female and a male entered the trap on April 5. The male was banded No. 39-255078. This pair was taken that same day to the Indiantown Gap Military Reservation, 22 miles northeast, and released at 12:55 p.m. In flight they kept together until out of sight. The male was not seen again. The female entered the same trap at 7:30 a.m. on April 7, two days later. She then repeated April 27 and 30 and was taken that last day 10 miles east and released at 11:40 a.m. Three days later she was back again, repeating May 3, 10, 14, 17, 18, 20, and 24 on which day she was apparently carrying a large egg. I did not weigh any of the Cowbirds, but I could feel a hard lump the size of a marble in the lower abdomen. Since I could not feel this object when I examined the bird again on May 25, I think that she had laid the egg before entering the trap. On May 25, I released the bird 16 miles from my trap and never saw her again.

Another pair of Cowbirds, Nos. 39-255006 and 7, trapped together May 10, 1947, was used experimentally. The male repeated May 16, was taken 3 miles to the State Capitol, released and not seen again until June 18 and 31. He was shot at Leland, North Carolina, the week of January 19, 1948.

The female, No. 39-255006, color-banded but recorded by handling, displayed her homing abilities through two seasons. Banded May 10, 1947, she repeated May 17, 31 (twice), June 17, 18, 24, 28 (twice), July 1, 3, 5, and 11. Returning on April 15, 1948, she repeated April 30, May 2, 8, and 9. On the last date she was carried 56 miles southwest to Chambersburg and released at 6:30 p.m. On May 14 she entered the trap at 5:30 p.m. On her next repeat, May 24, she apparently carried a large egg which was laid before her next visit, May 26. Then she repeated May 28 (twice), 29 (four times), and 30. Then taken 6 miles south through Harrisburg and released at 4:03 p.m., she was back at 6 a.m. the next morning. She repeated on June 1, 3, 5 (four times), 7 (twice), 9, and 10 (again apparently with a large egg which was laid before she entered the trap at 7:00 a.m., June 11). I took her by train to Philadelphia, 100 miles east, and released her

at the University of Pennsylvania at 10:30 a.m. on June 12. Just four days later, on June 16, she had found her way back and I saw her enter the trap at 10:15 a.m. This female then repeated again on June 18 (twice), 19, 20, 21, and 22. There are no further records of her.—HAROLD B. WOOD, *3016 N. Second Street, Harrisburg, Pennsylvania, January 28, 1951.*

Flight-speed of the Mourning Dove.—While driving toward Ridgetown, Ontario, on June 6, 1951, I had an opportunity to "clock" the speed in flight of a Mourning Dove, *Zenaidura macroura.*

The bird flushed from a hedgerow on the left side of the road and flew, in typical, direct flight, parallel with the vehicle, a distance of more than three-tenths of a mile. It was about twenty-five feet from my car, and flew approximately five feet above the ground. Adjusting the speed of the automobile to that of the bird, I discovered that the dove was moving at 55 miles per hour, as indicated by the speedometer of the vehicle. The flight, which was along a straight highway and "cross-wind," ended when the dove entered a roadside thicket.—ERIC WALTER BASTIN, *43, Inglewood Drive, Hamilton, Ontario, August 27, 1951.*

Female Cowbird hung in an old nest of Baltimore Oriole.—While inspecting nesting territories of the Baltimore Oriole (*Icterus galbula*) eight miles northwest of Ann Arbor, Michigan, I found the results of an interesting bird catastrophe. On May 6, 1951, I discovered the remains of four old oriole nests in a row of trees along a small stream in an open pasture. From one oriole nest dangled a female Cowbird (*Molothrus ater*), obviously dead for no more than a few weeks. On May 8, returning with climbing irons and ropes, I succeeded in cutting down the nest and found that the Cowbird hung by a single loop of horsehair. The body was somewhat dessicated but was fairly intact. Dissection of the body cavity showed no signs of the hard parts of an egg, yet it is hard to believe that the Cowbird was doing anything other than looking into old nests when caught and strangled. This furnishes evidence additional to that already in the literature that the Cowbird does not always find nests solely by watching the activity of other birds.

Two of the old oriole nests mentioned above were unusual in the great amount of horsehair used in their construction; the remains of the one pictured contained well over eighty percent horsehair.—K. T. ROGERS, *Dept. of Anatomy, E. Medical Bldg., Ann Arbor, Michigan, June 8, 1951.*

Sutton's Warbler (*Dendroica potomac*) again observed in West Virginia.—In late May, 1950, eight members of the Buffalo Ornithological Society visited the eastern

panhandle of West Virginia to observe the bird life of that region and to attempt again to locate Sutton's Warbler. After searching for some time along the Potomac near Shepherdstown, we spent several hours on Opequon Creek, about four or five miles southeast of Martinsburg, in an area known locally as Cose Dale. Here we heard a number of likely-sounding warbler songs, but each singer turned out to be a Parula Warbler (*Parula americana*).

I did, however, locate one Sutton's Warbler about forty feet up in an ash tree, near the creek at Dandridge's Dam, and was able to show it to every member of our party. The bird was in sight for several minutes, during part of which period it preened, allowing careful study of its entire underparts and part of its back. The fact that it did not sing led us to believe that it was a female. All of us noted the bright yellow throat, black-bordered at the side, the black extending slightly forward, tending to form a very incomplete ring across the breast. There was a white line over the eye, but no white area down the side of the neck nor any heavy black side-striping such as characterizes the Yellow-throated Warbler (*Dendroica dominica*). One of our observers, Bernard Nathan, was able to make out the greenish tinge on the back. Parts of the back visible to me seemed to be uniformly grayish and the crown also was gray, but darker. The bird later flew into a large sycamore and was soon lost to sight. Aside from Nathan and myself, the following persons saw the bird: Mr. and Mrs. Edward C. Ulrich, Heather Thorpe, William Almendinger, Robert Sundell, and Irwin Woldman. The date was May 29.

Next morning we continued our search, but without success. The heavy foliage could easily have hidden the birds, of course.

In early June 1951, we spent several days in the vicinity of Cose Dale and Dandridge's Dam, as well as along the banks of the Potomac and other neighboring areas, but were unsuccessful in locating Sutton's Warbler. However, we intend to continue our search for the bird and its nest, and thus ascertain whether both birds of the pair prove to be *Dendroica potomac*. We wish to thank Maurice Brooks, of West Virginia University, and Miss Serena Dandridge, of Shepherdstown, for aid and suggestions given our group; also Miss Dandridge and Miss Nina Mitchell for their hospitality.—Harold D. Mitchell, *378 Crescent Avenue, Buffalo 14, New York, September 1, 1951.*

Black Vulture depredations at Kentucky Woodlands.—The owner of a large farm within the area of Kentucky Woodlands Wildlife Refuge between the Tennessee and Cumberland rivers reported that he had lost a number of young pigs from attacks by Black Vultures (*Coragyps atratus*). I went to his farm on April 12, 1949, to investigate the report. He showed us three young pigs that had survived recent attacks. The pigs' tails were lacerated and broken, but the vultures had been driven away before serious damage had been done. The farmer estimated that vultures may have killed as many as 40 pigs on his farm during the previous year and a half. He had not, however, actually seen more than half that number being eaten by the predators. He reported that the birds attacked the tail and rectum and pulled out the intestines. Recently he had arrived at the scene of an attack in time to drive away several of the vultures from pigs still alive, but so badly injured that they died later. Although usually only new-born pigs were eaten, he described one case of a pig two weeks old that had been badly injured. The owner had also lost two calves which he thought had been killed by Black Vultures.

The farmer was able to describe accurately the differences between Black Vultures and Turkey Vultures (*Cathartes aura*) and assured us that only the former had been responsible for the depredations. The refuge manager, Talbott Clarke, verified many of the details in the farmer's account.

In a recent note (1947. *Auk*, 64:131—132), I reported a similar case in Meade County, Kentucky, 200 miles east of Kentucky Woodlands. As far as I can ascertain, this is only the second time that Black Vultures have been found preying on domestic stock in Kentucky. I can find no evidence that Turkey Vultures participate in these raids. W. J. Hamilton (1941. *Auk*, 58:254) reported Turkey Vultures killing young pigs near Fort Myers, Florida. In my earlier article, I expressed a doubt as to the identity of the birds involved. Dr. Hamilton has since informed me by letter that his informant was sufficiently familiar with both species of vultures to make the identification certain.—HARVEY B. LOVELL, *Biology Department, University of Louisville, Louisville, Kentucky, July 12, 1951.*

Stoddard's Yellow-throated Warbler in Bay County, Florida.—Roy C. Hallman of Port St. Joe, Florida, recently sent me for identification three specimens of the Yellow-throated Warbler (*Dendroica dominica*) collected at Panama City, Bay County, Florida, in the summer of 1942. A male taken June 27 is in worn breeding plumage. A female in fresh winter plumage, and labelled "adult" was taken July 15. A second specimen taken July 15, marked "immature sex?," is definitely browner in tone than the "adult" female.

The male in worn breeding plumage is the only conspicuously slender-billed bird of the three. Its bill-length is 14.5 mm. The "adult" female and young bird are fairly long-billed (respectively 13.5 and 12 mm.), but heavier-billed than the breeding male.

I do not hesitate to call the breeding male specimen an example of *D. d. stoddardi* and I am much interested in ascertaining that that race breeds in Bay County. As for the other two birds, they probably were transients from a breeding ground elsewhere. Mr. Hallman informs me that they were associating with a single Black and White Warbler (*Mniotilta varia*), a species which does not nest anywhere in the vicinity and which does not ordinarily arrive from the north nearly so early in fall migration.

All three specimens of *D. dominica* are yellow in the supraloral area. The adult male, "adult" female, and immature bird measure, respectively: wing, 67, 66, 62 mm.; tail, 50, 51, 49 mm.; and tarsus, 16.5, 17.5, and 17 mm.—GEORGE MIKSCH SUTTON, *University of Michigan Museum of Zoology, Ann Arbor, October 13, 1951.*

Upland Plover and Yellow-headed Blackbird in the Chicago region.—W. L. McAtee (1951. *Wilson Bulletin*, 63:112) recently recorded only one observation of the Upland Plover (*Bartramia longicauda*), and one of the Yellow-headed Blackbird (*X. xanthocephalus*) in the Chicago region. His note would infer that the report of Ford, Sanborn, and Coursen (1934. *Chicago Acad. Sci. Program of Activities*, 5 (2-3):39 and 65) indicating them to be "fairly common" is not correct.

For the past six years I have been observing birds in the Chicago region and have repeatedly found the Upland Plover. One pair (one of them identifiable by a crippled foot) returned each year for three years to a pasture north of Itasca. In 1947, in the area delineated by the towns of Itasca, Barrington, Arlington Heights, Mt. Prospect, and Prospect Heights, I recorded over 50 observations of Upland Plover and located six family groups. Twice I have seen plovers near Joliet and once near Essex in the northwestern corner of Kankakee County.

Each year I have found Yellow-headed Blackbirds at Baker Lake, Barrington, where they nest. I have been informed by local ornithologists that the birds had been nesting there for some years previous to my finding them. This year (1951) I counted six males in their territories. On two occasions I have seen this species in other nearby marshes. Although I have not seen them in the Calumet Lake region, they are reported there regularly.—F. J. FREEMAN, *Itasca, Illinois, July 29, 1951.*

EDITORIAL

One of the more important sources of Wilson Club funds, other than annual dues, is the sale of back issues of the *Bulletin*. The most advantageous of these sales is the sale of sets or long runs. A shortage of even one back number sometimes prohibits the sale of a considerable number of volumes. Volumes which can not be sold for this reason then become a liability rather than an asset.

Owing to certain unfortunate circumstances, we are now embarrassed by a shortage of three numbers (Nos. 1, 2, and 3) of the 1951 volume. We are especially short of the March issue. We suspect that many members do not keep all back issues on file. These members will be doing the Club a real and important service by returning any of the first three numbers of the 1951 volume no longer needed to the "Wilson Ornithological Club Library, Museum of Zoology, University of Michigan, Ann Arbor, Michigan" so that more sets can be sold. Members are reminded that increased club funds mean bigger and better future *Bulletins*!

One of the objectives of the Wilson Ornithological Club has always been the encouragement of research, particularly among the younger members. Research costs money, even the small field projects which require the weekly or daily use of an automobile to and from the site of operations. And money is something that isn't always available when and where it is most needed. Several generous friends of the Club have seen this problem and met it in a way which has, we believe, paid big dividends.

The *Louis Agassiz Fuertes Research Grant* of $100 was first announced in 1947, contributed by a staunch friend who prefers to remain anonymous. The *Pell Fund*, generously given to the Club in honor of the late S. Morris Pell for the purpose of encouraging young bird artists, was announced to members the same year. And last year still another award, the *Chalif Grant*, was announced with the special aim of encouraging and implementing field research in Mexico.

Your Research Committee, assigned the responsibility of selecting recipients, has been impressed with the high quality of the applications they have received. It is an indication of the kind of ornithology that we like to think the Club is fostering. Our only regret is that we have to disappoint so many applicants, but certainly no stigma can be attached to not being selected.

We hope that all members are aware of these awards and their eligibility to apply for them. Your chairman is ready to send application blanks and further information to any interested party. Act promptly, as the selections for the Fuertes and Pell Grants will be made and announced at the annual meeting in Gatlinburg, April 25–26, 1952. The closing date for receipt of applications will be March 25.

Your committee members are: Ernst Mayr, Frank Pitelka, George Sutton, Dwain Warner, and John Emlen, chairman. —JOHN T. EMLEN, JR.

The National Science Foundation has announced recently the establishment of research fellowships in various fields, including biology, as follows:

Predoctoral graduate fellowships, stipend $1400, $1600, or $1700 per academic year, with additional allowances for married fellows and those with dependent children.

Postdoctoral fellowships, stipend $3000 per academic year, with additional allowances as above.

The National Science Foundation will pay tuition and laboratory fees charged by the institution at which the fellow is studying. A limited travel allowance is paid. The fellowships are awarded solely for the education, training, and development of the recipients. Applications for the 1952-53 academic year are already closed, but those persons interested in applying at some later date should contact the Fellowship Office, National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D. C.

The Wilson Ornithological Club welcomes the formation of the Southern Ornithological Society, which was established at Gainesville, Florida, on September 29, 1951. The purposes of the Society are to stimulate interest and to promote research in Ornithology.

Dr. Pierce Brodkorb was elected President; Julian Baumel, Vice-President; David Karraker, Secretary; and Earl C. May, Treasurer.

Correspondence should be addressed to David Karraker, Department of Biology, University of Florida, Gainesville, Florida.

The Membership Committee

There are interested and enthusiastic bird students scattered throughout our land who do not belong to the Wilson Ornithological Club. A large majority of them are amateurs, a fact which doesn't lessen their possible contributions to ornithology and to our organization. The amateurs are, however, more difficult to contact in regard to membership. We think that these people would profit by membership. In turn, the club would profit by having a larger Bulletin, greater influence, and wider recognition. The membership committee cannot possibly search out all of these individuals. Each of you may know one or more persons who should join. Visualize what would happen to the club if each present member were to find one interested new member. The membership committee can function successfully only if the members will submit names to them. If you know of someone who should be a member, send the name and address of that person (typed or printed clearly, with the Miss, Mrs., Mr., or Dr. clearly indicated) to any of the following Membership Committeemen:

Ralph M. Edeburn, Chairman, Marshall College, Huntington, W. Va.
Hal H. Harrison, 1102 Highland Street, Tarentum, Pa.
R. T. Gammell, Kenmore, N. D.
George H. Lowery, Jr., Museum of Zoology, Louisiana State Univ., Baton Rouge, La.
Robert C. Conn, 769 Park Avenue, Bound Brook, N. J.
G. M. Sutton, Museum of Zoology, University of Michigan, Ann Arbor, Mich.
Thomas D. Burleigh, Forestry Building, Univ. of Idaho, Moscow, Idaho.
Gale Monson, P. O. Box 1717, Parker, Arizona.
Eugene Eisenmann, 11 Broadway, New York 4, New York.
Thomas H. Foster, West Road, Bennington, Vermont.
Harold D. Mitchell, 378 Crescent Avenue, Buffalo 14, N. Y.
Doris H. Speirs, R.R. No. 2, Pickering, Ontario.
Wendell P. Smith, Newbury, Vermont.
Virginia S. Eifert, 705 W. Vine Street, Springfield, Ill.
Lewis Terrill, 216 Redfern Avenue, Westmount, Montreal 6, Quebec.

OBITUARY

Rose Schuster Taylor (Mrs. Henry James Taylor) was born on a Wisconsin pioneer farm two miles west of Middleton in Dane County on January 5, 1863. She was graduated

from the University of Wisconsin in 1885 with second honors in her class. After her marriage in 1887 the family home was maintained in Sioux City, Iowa, where Mr. Taylor practiced law for the remaining 15 years of his life. In 1931 she moved to Berkeley, where she died on January 25, 1951, at the age of 88. Three sons and a daughter survive Mrs. Taylor. Naturalists in the central and western United States know Mrs. Taylor for her ornithological and botanical writings. For thirty years, after 1915, she had continuously in preparation some article based on thorough and original study. Her more than forty publications in this period dealt with birds, plants, natural history of Yosemite, Indians, and biographies of naturalists, especially ornithologists of the midwestern states. These reports contained abundant facts and characterizations obtained at first hand or from sources not available in print. About twenty persons were included, and special enthusiasm was devoted to the accounts of Coues, the Kumliens, and Miss Sherman. Along with this work she had an important influence upon a great many people through her varied services in community enterprises, upon natural history institutions, and upon other organizations. Many traveling naturalists made her home their headquarters in Sioux City or Berkeley. For a long period she spent a part of each year in Yosemite where she helped in the Museum and with other parts of the nature work. Mrs. Taylor joined the Wilson Ornithological Club in 1916, and later became a life member. For years she regularly made the long trip from California to attend the annual meetings. She joined the Cooper Club in 1920 and maintained active membership for twenty years. Accounts of her life have appeared in *Iowa Bird Life* (1951, vol. 21: 2–5) and *Yosemite Nature Notes* (1951, vol. 30: 13–14).—Jean M. Linsdale.

THE WILSON ORNITHOLOGICAL CLUB LIBRARY

The following gifts have been recently received. From:

Aaron M. Bagg—1 reprint
Andrew J. Berger—1 periodical
Hervey Brackbill—1 book
Oscar McKinley Bryens—1 reprint
Mildred F. Campbell—1 book
Betty Carnes—1 book
Robert M. Chew—1 reprint
J. Fred Denton—5 reprints
Eugene Eisenmann—1 reprint
William G. Fargo—1 book
Martin L. Grant—6 reprints
Fr. Haverschmidt—3 reprints
Karl W. Haller—9 books
James Hodges—1 pamphlet, 12 reprints
Philip S. Humphrey—1 reprint
Leon Kelso—2 pamphlets
Nada Kramar—2 books, 68 reprints and pamphlets
H. B. Lovell—1 reprint
Douglas S. Middleton—1 bulletin
New Zealand Department of Science and Industrial Research (Animal Ecology Section)—1 book, 3 reprints
Margaret M. Nice—11 reprints, 8 magazines, 6 books
Walter P. Nickell—1 reprint
Eugene P. Odum—1 book, 4 reprints
Christopher M. Packard—2 reprints
William H. Phelps—5 reprints
Frank A. Pitelka—3 reprints
Aretas A. Saunders—3 books
Frederic R. Scott—6 magazines
Clarence A. Sooter—1 reprint
Robert E. Stewart—3 reprints
Robert W. Storer—1 book, 2 reprints
George M. Sutton—2 books
Josselyn Van Tyne—12 reprints
F. A. Ward—1 magazine
L. R. Wolfe—27 reprints, 8 magazines
University of Wisconsin Department of Wildlife Management—2 reprints

ORNITHOLOGICAL LITERATURE

THE PHEASANTS OF THE WORLD. By Jean Delacour. Country Life Limited, London, and Charles Scribner's Sons, New York, 1951:8¾ × 11¼ in., 347 pp., with 16 color plates and 16 monochrome plates, and 21 maps and diagrams. $35.00.

No ornithologist living today is better fitted to attempt the task of preparing a new monograph on the pheasants than Jean Delacour. It is a particular pleasure then that he has chosen to do so, and to revise and emend so carefully and notably the previous monographs on one of the most beautiful of all avian families. His immediate predecessor in an illustrious line was Dr. William Beebe, whose four magnificent volumes on the subject, published between 1918 and 1922, have long been out of print as well as somewhat outmoded by advancing knowledge. Beebe's principal contributions were the observations on living birds made for the first time by a naturalist on many of the least known species.

Delacour during his remarkable career has been able to combine to an unusual extent the field and museum researches of an ornithologist with the patient study of a careful and recording aviculturist. Too few ornithologists have had any practical or first-hand experience with birds kept under observation in aviaries or at semi-liberty. Too few aviculturists are sufficiently trained or interested to keep records and observe various characteristics of the birds in their possession. It is the blending of work in the field, the museum, and the aviary that has given Mr. Delacour an unrivalled opportunity to study pheasants. It seems to me that such experience is a necessary requisite in any definitive study of these rare, secretive, and yet manageable birds.

The plan of this volume is admirable. Mr. Delacour has worked out what seems to this writer a practical and convenient systematic arrangement of the various genera and species, emphasizing relationships rather than diversity (presumably the aim of systematics). He has included under each genus a general discussion of range, field notes, and, in many cases, an important amount of material on the occurrences of these forms in captivity, their breeding, food habits and the like. Following this is a more detailed discussion of the species or subspecies, concise and to the point, which serves to make the amateur feel as much at home among the groups under discussion as the professional. Particularly serviceable in this connection is a detailed discussion of the forms of the true pheasants, *Phasianus*. Delacour recognizes two species and his break-downs into smaller groups and excellent distribution maps serve to create order out of what had been a chaos of races of these plastic birds. If the true pheasants are today still over-split, taxonomically speaking, at least we know now where to begin.

One of the most important aspects of this book is its emphasis on aviculture as an auxiliary aspect of ornithology. Although much is known, and that at least summarized in this volume, about conditions of keeping and rearing many kinds of pheasants, it becomes apparent from a perusal of this work that much remains unknown about the behavior of pheasants. The field is open to the behavior student to whom large aviaries may be available to study mating habits, pair formation, the relationships between adults and young, and a host of other psychological attributes of these relatively easily managed birds. The problem of territory could probably be readily studied among aviary birds. Variations within species would be particularly interesting in this connection. Perhaps the notably bad temper exhibited by species of *Syrmaticus* is directly explainable through a study of their territorial requirements. This is a poignant question to me as the only cock Ijima's Copper Pheasant (*S. soemmerringi ijimae*) I ever possessed was so incredib-

ly bad-tempered that immediately after mating with a hen of a closely-related subspecies, *S. s. soemmerringi*, he reached forward and broke her neck with a swift twist of his bill.

In short this is a magnificent book and must find its way into the library of every serious student of game birds, whether ornithologist, aviculturist, or sportsman. I cannot praise it highly enough as a many faceted accomplishment of one man. It seems unjust to carp about small details and I will not beyond saying that the spelling of some of the geographical names, particularly in the region of India, is not always according to current practice. Nor is the Barail Range (mentioned on p. 69) anywhere except *in* Cachar and the Naga Hills, rather than outside of these districts as implied. But this is quibbling. The plates by Mr. J. C. Harrison are excellent, even imparting a rough tweedy feeling to the birds as if they were being watched out of doors on a cold bracing day. A few are entirely too rough, however. The Sonnerat's Junglefowl is not done justice to by any means, and, at least in my copy, Rheinart's Crested Argus seems far too washed-out, and the Congo Peacock altogether too bright. However, these could easily be faults of the printing, quite out of the hands of the artist. In any monograph of this sort it might have been well to have listed, along with the scientific description of the bird, a citation of when, if ever, it had been illustrated in a publication.

Suffice it to say in any case that this volume is a "must" and well merits the great success and popularity it is bound to achieve.—S. Dillon Ripley.

ECOLOGICAL ANIMAL GEOGRAPHY. By W. C. Allee and K. P. Schmidt. Revised second edition, 1951. (Based on *Tiergeographie auf oekologischer Grundlage*. R. Hesse). John Wiley & Sons, Inc., N. Y., 5¾ × 9 in., xiv + 715 pp., 142 figs. $9.50.

Appearing fourteen years after the first (1937) edition, this useful work has been thoroughly revised and brought up to date. The 597 pages of the original edition have been expanded to 715. The improvements, as stated by the authors, are: "a greatly simplified terminology; a suitable background, without undue emphasis, for modern interest in conservation on a world-wide scale; expansion and revision of a large amount of material; expanded chapter bibliographies, including pertinent recent publications." With these changes the present edition is still more independent of the German original published in 1924, but even so large blocks of the original remain, as the authors acknowledge. The organization and chapter headings remain virtually unchanged. Even the separate paragraphs follow those of the first edition in their organization and contents, but new sentences have been added and phrasing altered to incorporate the large amount of new material that has been skilfully integrated with the old.

The bibliographic citations are fuller than in the earlier edition; titles are included and papers are arranged alphabetically by authors at the end of each chapter. Approximately one-seventh of the papers cited are new ones published since 1937. The authors state that age alone is little indication of the value of a given report, but that older papers may have special value when they accurately describe conditions of existence that were present years ago.

More than a dozen subjects are mentioned in the preface as illustrating the nature and scope of the revisions and additions in this second edition. One of these is "the concept of the biome, with a schematic map showing the biomes of the world." Discussion of the biome concept, however, is limited to one short paragraph. This brief discussion serves mainly to point out that the biome system cuts across Hesse's useful classification of the habitable world, the "biosphere," with successive divisions, into biocycles, superbiochores, biochores, subbiochores, biotopes and facies, a classification based primarily on physical

environmental features. The map mentioned (the same previously published in Principles of Animal Ecology, 1949, by Allee, Emerson, Park, Park & Schmidt) is on the inside of the cover, and shows not the biomes but the more inclusive "biome-types," seven of which are recognized. These are: Tundra, Taiga, Temperate Deciduous Forest, Grassland, Desert, Tropical Forest, and Temperate Rain Forest.

The last chapter, "The effect of man on the distribution of other animals," has been altered more than most others and contains much new material under the headings Deforestation; Controlled forests; Orchards, gardens, and parks; Buildings; Tropical regions; Aquatic life; Pollution of streams; Intentional and unintentional transport by man; Direct eradications; Disease and facilitation of its spread; Conservation. There are numerous references to birds, and changes in their ecology and distribution wrought by man's influence on the environment, with special emphasis on those found in the United States, but with many allusions to birds of other continents. Dependence for nesting sites on "artificial cliffs" provided by eaves of barns, is mentioned as characteristic of both Old World and North American barn swallows. These are referred to respectively as *Hirundo rustica* and *H. erythrogaster*, although their conspecificity has been recognized in recent years. Many other outdated scientific names of birds are used.

Among the sections that are of greatest interest to ornithologists is that containing the discussion of coastal birds, in the chapter "Animal Life of Swamps and of Shores." The works of many eminent authorities in this field are drawn upon. The statement (p. 582) that "Like the auks, penguins have only a single egg (rarely two) . . . " seems to minimize the fairly wide range of reproductive potential found among the sphenisciform birds. In another chapter, the penguins as a group are used to illustrate the Bergmann Rule of thermal economy by increase in body bulk in colder climates. Among the twelve species of four genera listed, there is a well-defined trend toward increasing size farther south, from the diminutive Galapagos penguin, to the giant emperor penguin of the Antarctic. However, the illustration seems not altogether appropriate, because the Bergmann Rule applies primarily to intraspecific trends.

Obviously many minor points of this nature could be raised in a review of any work involving such extensive compilation. But in general the source material has been well selected and carefully appraised to attain a high degree of accuracy. By their thoroughgoing revision and modernization of this important work, the authors have assured its continuing usefulness as a text and reference for many years to come.—H. S. Fitch.

WATERFOWL AND THEIR FOOD HABITS IN WASHINGTON. By Charles F. Yocum. University of Washington Press, Seattle, Washington, 1951:6 × 9 in., xvi + 272 pp., 48 plates, 63 figs. (including 5 maps), 47 tables. $5.00.

The author's stated objective (p. 2) is "to lay the groundwork for future research on waterfowl in Washington." In view of this objective, emphasis is placed on compiling pertinent information, with a minimum of interpretation. References to the literature are frequent and the bibliography of 90 titles is an adequate guide for the future researcher.

As the title indicates, the subject matter is divided into two fields—waterfowl and their foods. Geography and climate of Washington are briefly reviewed. Data relevant to migration, wintering, and nesting of two species of swans, ten kinds of geese, and 31 kinds of ducks and mergansers are recorded. Major waterfowl wintering grounds in Washington are outlined. The results of two summers' study of waterfowl found breeding in Washington are presented and there is a brief review of migration, effects of hunting, parasites and disease, and management.

Chapter 8, concerned with sex ratios of ducks in Washington, is especially good. Means of gathering sex ratio data are critically considered, with the conclusion that such data gathered from one locality or at one time are apt to be inadequate, and that the most reliable data are obtained from counts of birds in the field compared to live-trapping or hunters' kill data.

The chapters on food habits and food and cover plants (chapters 12 and 13) are more thorough than are the remaining ones. A relatively complete review of the literature is made and the original data are cross-tabulated by species, regions, and food items for ready comparison to other data. The original data are weak, as is frequently true for for game species, in that little information was gathered except during the hunting season. The chapter on food and cover plants is excellent with keys, illustrations, and distribution maps for the important food and cover plants of the state. A separate index to this chapter is appended.

In general, the make-up and printing are good and conducive to easy reading. The author's style is easy without being light, but is weakened by too frequent use of such words as "undoubtedly" and "probably." References are made to rather vague records of occurrence of waterfowl, but sole reliance is not placed on them. Unusual application of words such as "vulnerable" (p. 172), and unusual words such as "epizooty" (p. 132) are grammatically correct but do not contribute to clarity. The reviewer finds no justification for "speciate" (p. 16) when used to mean the identification of species.

Future students will be fortunate to have this groundwork for waterfowl studies in Washington.—Maurice F. Baker.

Beginner's Guide to Attracting Birds. By Leon A. Hausman. G. P. Putnam's Sons, New York, 1951: 127 pp., 27 pp. of text figures. $2.00.

In this little handbook we have a work with a clearly defined purpose: to point out to people who know little about birds the advantages and pleasures to be derived from having them around our homes, and then to outline some ways of supplying the necessary items for attracting them. With its low price, convenient size, and readability, it will admirably serve this purpose for many real or potential bird lovers. The illustrated suggestions for nest-boxes and feeding stations, particularly in their emphasis on naturalness and simplicity, seem to me excellent. The table of favored foods for various purposes is helpful—I wondered why nutmeats, however, did not receive the praise due them. Listing of food-producing vines and shrubs will be of interest and value to many, while discussions of such easily forgotten attractions as warm water, grit, dust, salt (for northern finches), and perches and shelters of several sorts, add much to the book's usefulness. The author's attitude toward English Sparrows, Starlings, and prowling cats seems a little over-benevolent at times; and there are passages in which birds are made to sound all but omnipotent as weed-seed and insect destroyers; but these things do not detract seriously. In trying to construct a non-technical key in a form so very abbreviated, using only a selected few "Home Grounds Birds," I feel Hausman has literally attempted the impossible. The key, which could scarcely be used as such at all, becomes little more than a series of thumbnail sketches of common birds (perhaps quite helpful in themselves). Classing a Pine Siskin as "gray" and a female Purple Finch as "brown or brownish," or placing such dissimilar birds as a Cedar Waxwing and a Brown Creeper almost adjacent, illustrates to me the uselessness of gross color and size as bases of separation. The choice of species is questionable, three *Hylocichla* thrushes being included, for example, and all wrens omitted from the key. The matter of geographic

coverage, while considered to some extent, would still be very confusing to a novice who did not happen to live in the Northeast. The ink sketches of birds, while sometimes crude, yet manage to capture enough of the species' personality that they could be very helpful. I would have preferred that more of them be used, and the descriptive matter not attempted at all. The good appended bibliography of other published material (a glaring typographical error cites Forbush and May: "*National*" *History of the Birds* . . .), should lead readers to adequate sources when they are ready to extend their knowledge of birds. It would be surprising if this book did not encourage a great many to do so. —William A. Lunk.

PRESERVE OR PLAYGROUND?

Within the last few generations, governments in the United States and Canada have created many public parks for the purpose of preserving areas of natural beauty and of particular floral and faunal significance. These have been enthusiastically accepted by the public which, encouraged by travel publicity, now throngs to such areas in ever-increasing numbers. Indeed, in some of our smaller parks, it now seems likely that the public, by sheer weight of numbers, is threatening to destroy some of the very things the parks were intended to preserve.

Consider, in microcosm, the example of Point Pelee National Park, Ontario, Canada. From the north shore of the western end of Lake Erie, Point Pelee extends southward for some nine miles in the form of a gracefully symmetrical isosceles triangle. Long sand dunes form the two sides of this attenuated triangle, and much of the interior is, or was, marsh land. About three miles from the end of the point, the marsh gives way to sandy soil able to support tall hardwoods. As the soil becomes thinner, red cedars are more prominent. Alongside the beaches and near the terminal sandbar, the vegetation becomes a tangle of shrubs and vines. The eastern sand dune is much less luxuriantly vegetated than the western one, particularly where it borders the marsh.

Point Pelee has long been of interest and concern to the Wilson Ornithological Club. In the early part of this century, members of the club from both Canada and the United States made many visits to study its natural history. Their ornithological findings were published at length in *The Wilson Bulletin* (Taverner and Swales, 1907–1908: No. 59, pp. 37–54; No. 60, pp. 82–89; No. 61, pp. 133–153; No. 63, pp. 79–96; No. 64, pp. 107–124; Wood, 1910, 22:63–78).

It was, in fact, a member of the club, the late Mr. P. A. Taverner, who, in his official capacity with the Geological Survey of Canada, drew up the original recommendation that the area be made a national park. The reasons for doing so were: (1) the point was an area of natural beauty which should be preserved; (2) as the southernmost part of the mainland of Canada, it supported a wide variety of Carolinian forms of flora and fauna not found elsewhere in Canada; (3) the large marsh on the point was one of the few waterfowl breeding-grounds of importance remaining in southern Ontario; (4) the area was a focal point on one of the most important migration highways in America, where almost incredible numbers of small migrant birds gathered in spring and fall.

In due course this recommendation took effect and, in 1918, Point Pelee National Park came into being by Order-in-Council. The park so formed comprises slightly more than six square miles of the more terminal portion of the point. In deference to local opinion and established custom, the government did not acquire private property existing within the limits of the newly formed park. This concession was contrary to the original recommendation made by Mr. Taverner, and the problems arising from these private holdings have increased rather than diminished.

In the period between the two wars, naturalists derived immense pleasure and satisfaction from studying the unique flora and fauna of the park, and from watching the pageant of migration each spring and fall. The foresight of Mr. Taverner and his associates had served to preserve all four important features of the point.

In the late 1930's, however, there were indications that the trend of civilization threatened to upset this satisfactory state of affairs. Improved highways and automobiles brought the park within a few hours' drive of the increasingly crowded cities adjacent to Lake Erie, and of a host of smaller towns in southern Ontario and nearby states. Simultaneously, more and more water frontage on Lake Erie was being withdrawn from public usage. The fame of the park's beaches and natural beauty spread rapidly. Several owners of property within the park subdivided their land for summer cottagers. The number of visitors to the park rose first to a gratifying, and then to an alarmingly high level. The physical impact of so many visitors began to make itself evident in the wooded portions of the park.

In 1939, Dr. Harrison F. Lewis, Chief of the Canadian Wildlife Service, and a member of this club, played a prominent part in an on-the-spot investigation. As a result, a block of the finest part of the original forest cover was enclosed by a fence to form a wilderness preserve which the public was not permitted to enter. The problem was then further deferred by the Second World War which, with its attendant travel restrictions and gasoline rationing, reduced the number of visitors to the park to a small fraction of what it had been.

Since the end of the war, all those forces making for a greater number of visitors have sharply intensified. This is clearly shown by the following figures for visitors in the six-month period from April to September: 1946, 74,000; 1948, 120,000; 1950, 207,000. In 1950, this meant an average of 1,100 visitors per day, over a period of six months. The peak figure for one day is in excess of 17,000 persons!

These people must be accommodated in an area of six square miles. Yet even this by no means presents the true picture. Nearly five of these square miles are marsh land. The fenced preserve takes a not inconsequential portion of the remainder. Thus the public is confined chiefly to the road margins, the western sand dunes, and the terminal portion of the point.

The physical impact of 200,000 people in an area of little more than a square mile must necessarily have a pronounced effect on the vegetation and wildlife of that area. How does this affect the purposes for which the park was established? The one most vitally affected concerns the migratory birds. The funnel-like shape of the point seems to have the effect of causing them to accumulate near the end of the point in immense numbers. Consequently, they require a correspondingly large amount of food and shelter. Under natural conditions these exist there. But with the advent of so many human visitors, also drawn as by a magnet to the end of the point, there have been considerable changes: the establishment of a large parking area, the removal of ground cover to form clearings, the removal of the understory beneath trees for convenience of picnickers, and some removal of trees and shrubs along the shoreline. The search for firewood has brought about the disappearance of old stumps, logs, and parts of living trees. There are even swings and a merry-go-round.

The trend is thus towards clearings instead of tangles, wind-blown space beneath the trees instead of undergrowth providing food and shelter. Less and less soil-forming material accumulates where it is needed to bind the sand and deter erosion by wind and water.

Inevitably, those who must administer the park are in a most difficult position. They are fully aware of the original ideas behind the creation of the park. They also know that the park is attracting 200,000 visitors a year, many of whom come primarily to swim, picnic, play ball, and enjoy community games. These people are not reluctant to voice their opinion that the recreational facilities are still largely inadequate, and they naturally receive support from among local business people to whom this influx forms a most welcome bonanza. Since it is, after all, a public park, they say, cannot more consideration be given to the comfort and requirements of the people who visit it? Should the welfare of the birds be safeguarded to the exclusion of the welfare of the people?

The answer to this question would never be final, yet it is frequently asked when nature and civilization come into conflict. We believe that the welfare of both man and bird can be safeguarded by careful planning. Public recreational areas are a primary need if people are to be able to enjoy their increasing leisure time. It is important, however, not to confuse the provision of recreational areas with the preservation of natural areas. They are requirements that can well exist side by side, but neither will function as both for very long.

In this instance, the migrant birds require a relatively undisturbed natural area, particularly at the end of the point. To them, Point Pelee is one very small but very important place where they gather from many regions for a brief but critical part of their lives. The number of suitable natural areas available to them as stop-over points has steadily declined. Point Pelee's importance to migrants is thus very great in relation to its size, and every acre assumes a tremendous significance. It would be virtually impossible to set up successfully alternate facilities for them elsewhere.

On the other hand, human requirements here are less complicated and more amenable to direction. Visitors who are sincerely interested in conservation and natural history should provide no problem either by their actions or by their numbers—let them be made welcome at the park by all means. The problem thus resolves itself into one of providing more adequate facilities for visitors interested primarily in other forms of recreation. Perhaps such facilities could be furnished in an attractive form to the north of the present park boundary. Failing this, we ask the National Parks Service if it would not be possible to acquire for this purpose some of the private holdings now existing within the more northern part of the park, and now being used as sites for the less attractive types of summer cottages. As a last resort, we would even be in favor of opening up the northern part of the east beach to the public. Any of these measures would assist in de-emphasizing the end of the point, much of which could then be permitted to return to natural cover.

With particular regard to Point Pelee National Park, there are also certain specific things which you, as a club member, can do if you wish. First, we suggest that, if you have not already visited the park in migration time, you owe it to yourself as an ornithologist to do so, even if only as a precaution, lest change should mar its future effectiveness. Second, for those who do visit it, we suggest that you look up the superintendent or his assistant, and let him know that you are visiting the park *as a naturalist*. Naturalists form a relatively small minority of all visitors, but their interests are catered to and it is well that they should pay their respects in order that the minority may not seem smaller than it actually is. Third, if you wish to express your impressions as to the value of the park as a preserve, we feel certain that your letters will receive courteous consideration from either the National Parks Service or the Canadian Wildlife Service, in Ottawa. There are sufficient members from this club who visit the park regularly to provide an impressive cross-section of ornithologists' viewpoints.

Finally, we make bold to hold out one further suggestion to the National Parks Service and the Canadian Wildlife Service. This involves the installation of a park naturalist. We know that park naturalists are being established in national parks in Canada as funds become available. But we suspect that, because of its small size, Point Pelee ranks far down on that list. We respectfully suggest that Point Pelee should be considered primarily from the viewpoint of the number of visitors it has. On that basis, the park is surely one of the most fertile spots on the continent for public education in natural history and the value of conservation. Let us have a park naturalist there *soon*, to demonstrate to visitors the reasons why the park was established, and to safeguard its wildlife resources. — WILLIAM W. H. GUNN AND HENRY S. MOSBY.

GRADUATE RESEARCH IN ORNITHOLOGY

The compilation of ornithological research in progress by graduate students which was published in *The Wilson Bulletin* in March, 1951 (vol. 63:62—64) was considered to be of value to enough readers that the Editor has asked us to repeat it. Inquiries were sent to some 40 American and Canadian universities where we thought there *might* be graduate students conducting their thesis investigations on ornithological topics.

The list should not be considered complete, however. Despite our care, we may have failed to reach all institutions, and a number did not respond. Furthermore, some limitations were imposed to keep the list within bounds. Studies concerned with the management, life histories, or ecology of game birds are not included here because they are noted elsewhere. *The Wildlife Review* lists such theses upon completion if the titles are filed with the Editor, Neil Hotchkiss, Patuxent Research Refuge, Laurel, Maryland. In June 1951, the Fish and Wildlife Service issued a list of current ornithological investigations at the 15 Cooperative Wildlife Research Units. This may be secured from the Service upon request.

Persons contacted were asked to list only those thesis investigations which were in progress during the fall of 1951, when the inquiry was made, and to indicate the degree for which the student was a candidate. Readers noting omissions are asked to notify us.

California, University of

Bowers, Darl (Ph.D.)—Correlation of color differentiation in Wren-tits with light factors in chaparral environment.

Bowman, Robert I. (Ph.D.)—Skeletal and muscular anatomy and adaptions of Galapagos finches.

Childs, Henry E. (Ph.D.)—Population studies of the Brown Towhee (*Pipilo fuscus*).

Cogswell, Howard L. (Ph.D.)—Size of territory in chaparral birds in relation to vegetation.

Dixon, Keith L. (Ph.D.)—Comparative ecology and behavior of sympatric and hybridizing species of titmice.

Johnston, David (Ph.D.)—Gonad cycle and histology in immatures and adults of the California Gull.

Norris, Robert A. (Ph.D.)—A comparative study of the biology of the nuthatches *Sitta pygmaea* and *Sitta pusilla*.

Richards, Lawrence P. (Ph.D.)—Morphologic adaptions in the drepaniids of Hawaii.

Cornell, University of

Dilger, William C. (Ph.D.)—A study of the thrushes of the genus *Hylocichla*.

Fischer, Richard B. (Ph.D.)—Life history of the Chimney Swift (*Chaetura pelagica*).

Goodwin, Robert E. (M.S.)—A study of the Black Tern.
Parkes, Kenneth C. (Ph.D.)—Speciation in the breeding birds of New York State.
Reilly, Edgar M. (Ph.D.)—The origin of North American birds, based on studies for the new A. O. U. Check-List.

Florida, University of

Adams, Claude T. (M.S.)—Osteology of the Ardeidae.
Baumel, Julian J. (Ph.D.)—Comparative osteology of the genus *Corvus*.
Briggs, Marjorie A. (M.S.)—Anatomy of the Sylviidae.
Burns, Bartley J. (M.S.)—Birds of Newnans Lake, Florida.
Fehon, Jack H. (M.S.)—Comparative osteology of King and Clapper Rails (*Rallus elegans* and *R. longirostris*).
Fogle, Orin G. (M.S.)—Body temperature of hawks and owls.
Karraker, David O. (M.S.)—Birds of Lake Alice, Florida.
Nelson, Gideon E., Jr. (Ph.D.)—Generic relationships in the Fringillidae.

Georgia, University of

Jenkins, James H. (Ph.D.)—Physiological ecology of the Mourning Dove; a study of age and seasonal changes in feathers, gonad histology and lipid deposition.
Johnston, David W. (M.S.)—Breeding bird populations in relation to plant succession on the Piedmont of Georgia.
Kuenzler, Edward J. (M.S.)—Population density of breeding birds in relation to plot size on a Savannah River area.
Major, James C. (M.S.)—The effect of high and low fat diet on photoperiod-induced lipid deposition in the White-throated Sparrow.

Illinois, University of

Calef, Robert T. (Ph.D.)—Breeding bird census and biotic community.
Davis, Earle A., Jr. (Ph.D.)—Seasonal variation in the energy balance of birds as affected by photoperiod and temperature.
Durham, Leonard (Ph.D.)—The relationship between populations of fishes and predatory birds feeding upon them.
Eyster, Marshall B. (Ph.D.)—Influence of temperature and photoperiod on innate activity in birds.
Goodman, Donald C. (Ph.D.)—Myological and osteological adaptations in the feeding apparatus of ducks.
James, Douglas A. (Ph.D.)—Experimental measurement of perception and intelligence in passerine birds.
Martin, Norman D. (Ph.D.)—Life history of the Screech Owl and experimental study of photoperiods in this nocturnal species.
Miller, Ross J. (A. M.)—Measurement of breeding bird populations.
Pearson, Robert W. (A. M.)—Breeding bird censuses of the forest edge.
Robertson, William B. (Ph.D.)—Breeding bird populations in relation to succession and geographic origin.
Stubbs, Robert K. (Ph.D.)—Energy balance in the Bobwhite at different temperatures and photoperiods.
Van Horn, Donald H. (A. M.)—Breeding bird censuses.
Weise, Charles M. (Ph.D.)—Experimental measurement of the effect of gonads on migratory impulse and fat formation in birds.

Iowa State College

Bliese, John C. W. (Ph.D.)—The roosting of Bronzed Grackles and their associates, and related phenomena, at Ames, Iowa.

Kansas, University of

Stallcup, William B. (Ph.D.)—Soft anatomy of fringillids.

Michigan State College

Eyer, Lester E. (Ph.D.)—Natural history of the Bronzed Grackle.

Michigan, University of

Batts, H. Lewis, Jr. (Ph.D.)—An ecological study of a 60-acre portion of the Newcomb Tract, near Ann Arbor, Michigan, with special reference to the nesting birds.

Hofslund, Pershing B. (Ph.D.)—A life-history study of the Yellow-throat (*Geothlypis trichas*).

Humphrey, Philip S. (Ph.D.)—Analysis of the Mergini.

Lunk, William A. (Ph.D.)—Life history of the Rough-winged Swallow (*Stelgidopteryx ruficollis*).

Mengel, Robert M. (Ph.D.)—Birds of Kentucky.

Owre, Oscar T. (Ph.D.)—A study of the Anhinga.

Minnesota, University of

Harrell, Byron E. (Ph.D.)—Ecological zoogeography of the birds of the Mexican oak-sweet gum forests.

Pospichal, Leo (M.S.)—An ecological study of the Sora and Virginia Rails on some Minnesota marshes.

Rustad, Orwin (M.A.)—A survey of the birds of Rice County, Minnesota.

Northwestern University

Shank, Max (Ph.D.)—Experimental study of the refractory period in the Junco and the White-throated Sparrow.

Ohio State University

Garrett, Lois (Ph.D.)—The life history of the Indigo Bunting.

Glenny, Fred (Ph.D.)—Some significant changes in the aortic arches and their derivatives and their ultimate fate in birds.

Good, Eugene (Ph.D.)—The life history of the Eastern Crow.

Land, Hugh (M.S.)—The seasonal shifting of behavior patterns related to territorialism in the Cardinal.

Miskimen, Mildred (Ph.D.)—The role of weather in bird migration.

Reese, Carl R. (Ph.D.)—A study of the relationship of inorganic and protein-bound blood iodine to the diurnal body temperature cycle of birds.

Swinebroad, Jeff (Ph.D.)—Bird populations in a cut-over woods.

Pennsylvania State College

Dowling, Paul B. (M.S.)—Auditory and vocal ranges in certain birds with special regard for economic applications.

Myers, Betty B. (M.S.)—The volume of birds.

Texas A. and M. College

Lord, Rexford (M.S.)—Anatomy of the avian eye.

Scroggins, Joe B. (M.S.)—Birds of the Mexican State of Hidalgo.

Washington State College

King, James R. (M.S.)—Breeding birds of the Pullman area (Washington).

Mewaldt, L. R. (Ph.D.)—Reproductive cycle of Clark's Nutcracker.

Trivette, Edward G. (M.S.)—Comparative study of the pelvic muscles of the Lari and Alcae (Charadriiformes).

West Virginia University

Hundley, Marion L. (M.Sc.)—A winter distribution study of the Cardinal (*Richmondena cardinalis cardinalis*).

Wisconsin, University of

Lanyon, Wesley E. (Ph.D.)—A study of the ethology of the genus *Sturnella* in Wisconsin.

Nero, Robert (Ph.D.)—Breeding behavior and territory in the Redwing (*Agelaius phoeniceus*).

Peterson, Arnold (Ph.D.)—Breeding biology and behavior of the Bank Swallow (*Riparia riparia*).

Yale University

Huntington, C. E. (Ph.D.)—Speciation in *Quiscalus*.

Paynter, R. A., Jr. (Ph.D.)—Avian biology of Quintana Roo, Mexico.

—Aaron M. Bagg and Gustav A. Swanson

NEW LIFE MEMBER

Oakleigh Thorne, II, was born October 12, 1928, at New York City. In 1951, he received the degree of Bachelor of Science (in Biology) from Yale University where he is at present continuing his studies toward the degree of Master of Science (in Conservation). His principal interests are in field research and in wildlife photography. Especially is he interested in the production of films to aid in conservation education. He has done population studies and has worked for the National Audubon Society at Greenwich, Connecticut. He is a member of the A. O. U., Cooper Ornithological Club, National Audubon Society, Massachusetts Audubon Society, Hawk Mountain Sanctuary Association, Linnaean Society of New York, New York Zoological Society, Federation of New York State Bird Clubs, Eastern and Western Bird Banding Associations, and the American Forestry Association. The results of his population studies have been published in *Audubon Field Notes*.

The actual dates of publication of the four numbers of *The Wilson Bulletin* in 1951 were: April 19, July 2, September 26, and December 21.

This number was published on March 15, 1952.

EDITOR OF THE WILSON BULLETIN
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CHAIRMAN OF THE ILLUSTRATIONS COMMITTEE
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SUGGESTIONS TO AUTHORS

Manuscripts intended for publication in *The Wilson Bulletin* should be neatly typewritten, double-spaced, and on one side only of good quality white paper. Tables should be typed on separate sheets. Before preparing these, carefully consider whether the material is best presented in tabular form. Where the value of quantitative data can be enhanced by use of appropriate statistical methods, these should be used. Follow the A. O. U. Check-List (fourth edition) and supplements thereto insofar as scientific names of United States and Canadian birds are concerned unless a satisfactory explanation is offered for doing otherwise. Use species names (binomials) unless specimens have actually been handled and subspecifically identified. Summaries of major papers should be brief but quotable. Where fewer than five papers are cited, the citations may be included in the text. All citations in "General Notes" should be included in the text. Follow carefully the style used in this issue in listing the literature cited. Photographs for illustrations should be sharp, have good contrast, and be on glossy paper. Submit prints unmounted and attach to each a brief but adequate legend. Do not write heavily on the backs of photographs. Diagrams and line drawings should be in black ink and their lettering large enough to permit reduction. The Illustrations Committee will prepare drawings, following authors' directions, at a charge of $1 an hour, the money to go into the color-plate fund. Authors are requested to return proof promptly. Extensive alterations in copy after the type has been set must be charged to the author.

A WORD TO MEMBERS

The Wilson Bulletin is not as large as we want it to be. It will become larger as funds for publication increase. The Club loses money, and the size of the *Bulletin* is cut down accordingly, each time a member fails to pay dues and is put on the 'suspended list.' Postage is used in notifying the publisher of this suspension. More postage is used in notifying the member and urging him to pay his dues. When he does finally pay he must be reinstated on the mailing list and there is a publisher's charge for this service. The *Bulletin* will become larger if members will make a point of paying their dues promptly.

NOTICE OF CHANGE OF ADDRESS

If your address changes, notify the Club immediately. Send your complete new address to the Treasurer, Leonard C. Brecher, 1900 Spring Drive, Louisville 5, Kentucky. He in turn will notify the publisher and editor.

THIRTY-THIRD ANNUAL MEETING

of the

WILSON ORNITHOLOGICAL CLUB

GATLINBURG, TENNESSEE, FRIDAY AND SATURDAY, APRIL 25 - 26, 1952

Organized Field Trips on Sunday, April 27

The location of this meeting, at the gateway to the Great Smokies, offers unusual attractions to people interested in nature. Papers sessions will begin at 10:30 a.m. to allow time for informal field trips each morning. The scenic area and the availability of cabins should make this meeting especially attractive to family groups. For complete details, see the *Bulletin* for December, 1951.

Members are reminded of the Club's urgent need of spare issues of Numbers 1, 2, and 3 of the 1951 volume of the *Bulletin*. For further details, see Editorial section of this issue.